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2019-6605
2020-01-10

FBN CLOPYRALID TECHNICAL HERBICIDE

FOR MANUFACTURING USE ONLY

SOLID

ACTIVE INGREDIENT: Clopyralid..... 98.0%

REGISTRATION NO. 33664 PEST CONTROL PRODUCTS ACT

READ THE LABEL BEFORE USING

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

CAUTION



POISON

DANGER – CORROSIVE TO EYES

NET CONTENTS 25-500 kg

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

DIRECTIONS FOR USE

To be used only in the manufacture of a pesticide registered under the *Pest Control Products Act*.

PRECAUTIONS

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

DANGER - CORROSIVE TO EYES

HARMFUL IF ABSORBED THROUGH SKIN OR INHALED

DO NOT get in eyes, on skin or clothing. Wear goggles or face shield and rubber gloves when handling. Avoid breathing dust. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice.

Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

No specific antidote. Supportive care. Treatment based on the judgment of the physician in response to reactions of the patient.

ENVIRONMENTAL HAZARDS

Do not allow this material or waste water or solvent which contains it to discharge into lakes, streams, ponds, public waters or sewers.

STORAGE

Keep in original container during storage. To prevent contamination, store this product in cool, dry, well ventilated place away from food and feed. Keep away from fire or open flame, or other source of heat.

DISPOSAL

Canadian manufacturers should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and clean-up of spills, contact the manufacturer or the provincial regulatory agency.

CLEAN UP INSTRUCTIONS

Cover spillage with an industrial absorbent or sawdust. Sweep up thoroughly and place in a labeled container for safe disposal. Avoid entry of the material into sewers or water courses.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

2019-6648
2019-12-23

GROUP	22	HERBICIDE
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FBN DIQUAT 240SN

HERBICIDE

Solution

AGRICULTURAL

For Desiccation of Pulse, Oilseed and Legume Forage Seed Crops, Weed Control in Vegetable and Field Crops, Control of Corn Spurry in Oats and Weed Control in Non- crop Land (rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks).

ACTIVE INGREDIENT:

Diquat, present as diquat dibromide.....240 g/L

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

WARNING



POISON

CAUTION – EYE AND SKIN IRRITANT

REGISTRATION NO. **33649**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **10 L to Bulk**

Registrant:
Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

WARNING!
***HARMFUL OR FATAL IF SWALLOWED.**
HARMFUL IF INHALED, AVOID INHALING/BREATHING DUST, SPRAYS, ETC.
***CAUSES SUBSTANTIAL EYE INJURY AND SKIN IRRITATION.**
***DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.**
***NEVER TRANSFER TO OTHER CONTAINERS.**
*** KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, **IMMEDIATELY** hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If swallowed, give adsorbent suspension, for example either activated charcoal (100 g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄, Na₂SO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column.

If in eyes, treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

PRECAUTIONS

EXCESSIVE EXPOSURE TO DIQUAT MAY CAUSE A HEALTH HAZARD. FOLLOWING THE DIRECTIONS AND PRECAUTIONS WILL REDUCE EXPOSURE.

DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical-resistant footwear and a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides during mixing, loading, application, clean-up and repair. Chemical-resistant headgear must be worn for overhead applications. Gloves are not required during application within a closed cab or cockpit. Most exposure to pesticides is by absorption through skin, especially from concentrated material handled at the time of mixing and loading. Rolling down the sleeve end of the glove will prevent drips of liquid from running down the glove onto your arm.

Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY. Launder contaminated clothing prior to reuse and separate from household laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Do not eat, drink, handle or use tobacco, or apply cosmetics in areas where there is potential for exposure to this product. Users should wash hands and face before eating, drinking, chewing gum, handling tobacco or using the toilet. Store and wash all protective clothing separately from household laundry.

Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours for all agricultural uses. For all other terrestrial uses, DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

STORE IN ORIGINAL CONTAINER tightly closed in a safe place away from children.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

ENVIRONMENTAL HAZARDS

ANY DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH.

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid applications to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative buffer strip between the treated area and the edge of the water body.

STORAGE

Store in original container, tightly closed, in a safe place away from children.

Store above 0°C. If crystallization occurs because of storage below this, warm to room temperature and agitate gently until reconstituted.

To prevent contamination store this product away from food or feed.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-613-966-6666***

FBN DIQUAT 240SN

HERBICIDE

Solution

AGRICULTURAL

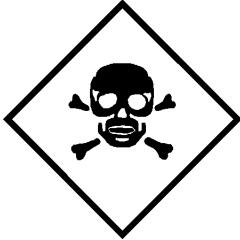
For Desiccation of Pulse, Oilseed and Legume Forage Seed Crops, Weed Control in Vegetable and Field Crops, Control of Corn Spurry in Oats and Weed Control in Non- crop Land (rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks).

ACTIVE INGREDIENT:

Diquat, present as diquat dibromide.....240 g/L

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

WARNING



POISON

CAUTION – EYE AND SKIN IRRITANT

REGISTRATION NO. **33649**
PEST CONTROL PRODUCTS ACT

Registrant:
Farmer’s Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

WARNING!
***HARMFUL OR FATAL IF SWALLOWED.**
HARMFUL IF INHALED, AVOID INHALING/BREATHING DUST, SPRAYS, ETC.
***CAUSES SUBSTANTIAL EYE INJURY AND SKIN IRRITATION.**
***DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.**
***NEVER TRANSFER TO OTHER CONTAINERS.**
*** KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, **IMMEDIATELY** hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If swallowed, give adsorbent suspension, for example either activated charcoal (100 g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄, Na₂SO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column.

If in eyes, treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

PRECAUTIONS

EXCESSIVE EXPOSURE TO DIQUAT MAY CAUSE A HEALTH HAZARD. FOLLOWING THE DIRECTIONS AND PRECAUTIONS WILL REDUCE EXPOSURE.

DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical-resistant footwear and a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides during mixing, loading, application, clean-up and repair. Chemical-resistant headgear must be worn for overhead applications. Gloves are not required during application within a closed cab or cockpit. Most exposure to pesticides is by absorption through skin, especially from concentrated material handled at the time of mixing and loading. Rolling down the sleeve end of the glove will prevent drips of liquid from running down the glove onto your arm.

Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY. Launder contaminated clothing prior to reuse and separate from household laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Do not eat, drink, handle or use tobacco, or apply cosmetics in areas where there is potential for exposure to this product. Users should wash hands and face before eating, drinking, chewing gum, handling tobacco or using the toilet. Store and wash all protective clothing separately from household laundry.

Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours for all agricultural uses. For all other terrestrial uses, DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

STORE IN ORIGINAL CONTAINER tightly closed in a safe place away from children.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

ENVIRONMENTAL HAZARDS

ANY DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH.

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid applications to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative buffer strip between the treated area and the edge of the water body.

STORAGE

Store in original container, tightly closed, in a safe place away from children.

Store above 0 °C. If crystallization occurs because of storage below this, warm to room temperature and agitate gently until reconstituted.

To prevent contamination store this product away from food or feed.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-613-966-6666***

PRODUCT INFORMATION

FBN DIQUAT 240SN™ is a non-volatile, fast acting herbicide. It is inactivated on contact with the soil and therefore, has no residual effect. The herbicidal effect varies with weed species, hence repeat applications may be necessary upon certain perennial weeds. Annual weeds are generally killed with one application.

Germination of seed is not affected by FBN DIQUAT 240SN for all crops which could go for seed sale.

FBN DIQUAT 240SN is easily applied in high or low volume sprayers. Very low volume or ultra low volume equipment for aerial application, e.g. rotary atomizer nozzles such as MICRONAIR, are not recommended. Flat fan or hollow cone nozzles are recommended for optimum results. Always use recommended water volume. Complete coverage is essential. DO NOT USE MIST BLOWERS.

FBN DIQUAT 240SN is rapidly absorbed by plants, and effectiveness is not reduced by rain falling shortly after treatment. EFFECTIVENESS OF THE TREATMENT MAY BE ENHANCED WHEN APPLICATION IS MADE ON CLOUDY DAYS OR PRIOR TO PERIODS OF DARKNESS.

Use clean (non-turbid) water for spraying FBN DIQUAT 240SN. Muddy water will reduce the effectiveness of FBN DIQUAT 240SN.

THE USER MUST BE AWARE THAT THIS PRODUCT ACCELERATES THE NATURAL PROCESS OF CROP DRY DOWN. IN CASES OF ADVERSE WEATHER CONDITIONS SUCH AS HEAVY RAIN, HAIL OR STRONG WIND, THE RESULTANT DAMAGE TO YOUR CROP MAY BE ENHANCED. TAKE NOTE THAT CERTAIN CROPS ARE MORE FRAGILE THAN OTHERS.

Crop waste remaining after harvest (e.g. pea vines, alfalfa stems) may be used as a feed supplement for livestock.

HARVESTING

The use of FBN DIQUAT 240SN facilitates direct combining of many field crops such as lentils, peas, canola, mustard or legumes. Growers who wish to swath desiccated crops should wait until the crop has dried down sufficiently to allow the desiccated crop to be picked up and threshed immediately after swathing. Delaying threshing after swathing desiccated crops will increase shattering and seed loss.

For most crops, harvest can normally commence within 4-10 days after desiccation. However, adverse weather conditions such as rainfall, cool temperatures and high humidity will slow plant desiccation and keep seed moisture levels high which can delay commencement of harvest beyond 10 days after application. When those conditions prevail after FBN DIQUAT 240SN desiccation, commence harvest when plant material is dry and seed moisture level allows efficient harvesting. To minimize seed loss and to maintain seed quality, harvest of desiccated crops should commence as soon as seed moisture reaches the level for normal harvest.

CLEANING SPRAYER AFTER USE

It is important to thoroughly wash equipment after spraying - use a wetting agent (AGRAL® 90 at 60 mL per 100 L of water), flush and spray out, then thoroughly rinse with clean water. When possible, the equipment should be filled with clean water and left overnight. Spray out before storing equipment or using for other materials.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Refer to the following table for a summary of rates, application volumes and growth stages for ground and aerial application of FBN DIQUAT 240SN. The table provides operational information. The applicator is directed to the CROPS-ADDITIONAL NOTES section for any additional information prior to spraying. Ground spraying may be done with any standard boom sprayer.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, temperature inversions, application equipment and sprayer settings.

Mixers and loaders supporting aerial applications are required to use closed systems.

Field sprayer application: DO NOT apply during period of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C) and **humidity** (greater than 50%). DO NOT apply when wind speed is greater than 9 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To minimize spray drift, use flat fan or hollow cone nozzles, and a pressure of 150-200 kPa, with the nozzle pointed back 150°-180°. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wingspan or rotorspan.

For application to rights-of-way, buffer zones for production of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g. wind direction, low wind speed) and spray equipment (e.g. coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

Use AGRAL 90, a wetting and spreading agent, at a rate of 1 L for each 1000 L of spray mixture unless otherwise stated.

AGITATE WELL BEFORE USE.

Buffer zones:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of:			
		Aquatic Habitat of Depths:		Terrestrial Habitat	
		Less than 1 m	Greater than 1 m		
Field sprayer ¹	Beans, canola, flax, lentils, mustard, peas, sunflower, legume forage seed crops, sweet white lupins	5	3	3	
	Vegetable and field crops, fruit, non-cropland (including rights-of-way ² for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)	10	5	5	
Aerial	Beans, legume forage seed crops	Fixed wing	150	80	90
		Rotary wing	100	55	70

¹ For field sprayer application, buffer zones can be reduced with the use of drift-reducing spray shields. When using a spray boom fitted with a shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

² For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zones of the products involved in the tank mixture.

GROUND APPLICATION

Ground spraying may be done with any standard boom sprayer.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Mixers and loaders supporting aerial applications are required to use closed systems.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew must wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical-resistant footwear and a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides during mixing/loading, clean-up and repair.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 45 litres per hectare.

Refer to ENVIRONMENTAL PRECAUTIONS for additional details.

ENVIRONMENTAL PRECAUTIONS

AIRCRAFT APPLICATION IS NOT RECOMMENDED WHERE WETLANDS OR WILDLIFE COVER MIGHT BE OVERSPRAYED. AVOID SPRAY DRIFT ONTO ADJACENT CROPS, SHELTER BELTS AND WILDLIFE COVER. AVOID OVERSPRAYING OR DRIFT ONTO SLOUGHS.

SINCE HERBICIDE APPLICATION MAY DAMAGE THE HABITAT OF MIGRATORY BIRDS AND OTHER WILDLIFE SPECIES, DO NOT USE AERIAL APPLICATION IN FIELDS WHERE WETLANDS OR OTHER GOOD WILDLIFE COVER MIGHT BE OVERSPRAYED; THIS INCLUDES SLOUGHS AND DRY SLOUGH MARGINS IN WESTERN CANADA. USE GROUND SPRAYERS AND LEAVE AN UNSPRAYED MARGIN OF 15 M AROUND THE BORDER OF ALL SLOUGHS.

Apply in weather conditions that will not promote drift. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C), **humidity** (greater than 50%), and **wind** 3.5-9 kph at flying height at the site of application. Do not apply in dead calm conditions or when temperature inversion is likely (e.g. evening when warm air is rising from crop or morning when sunshine warms the soil and air rises from the field). To avoid spray drift, use flat fan or hollow cone nozzles, and a pressure of 150-200 kPa, with the nozzles pointed back 150°-180°.

TABLE 1

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Field Crops					
Beans-White & Red Kidney, Soybeans and Adzuki beans	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray at 80-90% natural leaf defoliation and at least 80% of the pods have turned yellow. Consider pod turn only when determining application time in years when heavy vine growth is anticipated.
	1.7-2.1	Aerial	at least 45		
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	
2.3	Aerial	at least 45			
Canola	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply when 90% or more of seed has turned brown. Combine no later than 14 days after application.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
2.3	Aerial	at least 45			
Chickpeas	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green. For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Drydown is less complete in Kabuli type due to its thick pod wall.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	

Flax (including low linolenic acid varieties)	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when crop is at 75% boll turn stage.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	Harvest when flaxseed tests 'dry'.
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Legumes (alfalfa, birdsfoot trefoil, red clover and white clover) Seed Crops	1.7-2.7	Ground	225-550	Full canopy and/or weedy crop	Seed crops only. Apply when the majority of the pods of individual plants are ripe but before they shatter. To prevent pod shattering and loss of seed the interval between spraying and harvest should not exceed 7 days.
	1.7-2.7	Aerial	at least 45		
	2.7	Ground	225-550	Very dense canopy and/or weedy crop and/or secondary regrowth	
	2.7	Aerial	at least 45		
Lentils	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply FBN DIQUAT 240SN at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and rattle.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		
Mustard (condiment type only)	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when crop is at 75% seed turn (green to brown) stage.
	1.7	Aerial	at least 45	Very dense canopy and/or weedy crop	Combine no later than 14 days after application.
	2.3	Aerial	at least 45		
Oats - Corn Spurry Control	0.9	Ground	225-335	Corn spurry less than 8 cm high	Do not use wetters, spreaders or stickers.
	1.25	Ground	225-335	Corn spurry more than 8 cm high	Apply when oats are 8-15 cm in height. DO NOT APPLY BY AIR.
Peas - Field or Dry	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply FBN DIQUAT 240SN when bottom pods of the majority of the plants are ripe & dry with the seeds detached from the pods. Seed in less mature pods will split when squeezed.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Sweet White Lupins	2.3	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when the pods are brown and the internal seed (endosperm) yellow when cut. DO NOT APPLY BY AIR.
Sunflowers	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when seeds reach maturity (20-50% moisture in the seed and hull). Combine 15-20 days after spraying.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Vegetables & Field Crops					
Stale Seedbed	2.3	Ground	at least 300	Small weeds (3-5 cm high)	Stale Seedbed - Pre-emergent to crop, post emergent weeds.
	4.6	Ground	at least 300	Large weeds (greater than 5 cm high)	Burn off weeds either prior to, or after seeding, but 3 days before crop emergence. If grasses are present, use GRAMOXONE® in place of FBN DIQUAT 240SN. DO NOT APPLY BY AIR.
Vegetables					
Inter-row directed weeding	2.3-4.6	Ground	900-1100		If grasses are present use GRAMOXONE in place of FBN DIQUAT 240SN. DO NOT APPLY BY AIR.
Fruit					
Perennial grass suppression under apple trees	4.6	Ground	225-675		DO NOT APPLY BY AIR.
Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)					
Weed Control in non-crop land	2.3-4.6	Ground	550-1100		Use higher rates and higher volume of water for dense weed growth. Thoroughly wet foliage. DO NOT APPLY BY AIR.

CROPS - ADDITIONAL NOTES

Beans

White and Red-Kidney Beans, Soybeans and Adzuki Beans

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Spray at 80-90% natural leaf defoliation and when at least 80% of the pods have turned yellow. In years of excessive vine regrowth, consider pod colour only for the timing of FBN DIQUAT 240SN application. Desiccation of weeds is completed in a week. THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS. Direct combine or pull beans when they are considered ready. Combining of dry beans and Adzuki beans can often be done the day of pulling; however, this is dependent on the condition of the beans.

FBN DIQUAT 240SN applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of FBN DIQUAT 240SN for beans as well as the highest registered water volume to obtain the best activity.

Canola

This treatment does not mature canola. FBN DIQUAT 240SN is an effective desiccant aiding in the harvest of canola. Speed of pod and stem dry down will vary depending on spray coverage, environmental conditions and plant growth stage at application; however pod and stem kill will take place 7-10 days after application.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Apply when 90% or more of seed has turned brown; application of FBN DIQUAT 240SN prior to this stage can result in high levels of green seed in the sample.

Commence harvest as soon as the crop can be combined since significant yield loss in standing desiccated canola crops, particularly Argentine varieties, can occur due to pod drop and pod shattering. This yield loss can be greater if harvest of the standing desiccated crop is delayed or when unfavourable weather conditions including high winds and heavy rainfall occur.

Germination of seed is not affected by FBN DIQUAT 240SN desiccation.

Chickpeas

This treatment does not mature chickpeas. Chickpea swaths are at risk to wind loss, and straight cutting is preferred. Timing is vital as premature desiccation will result in yield and quality loss. Crops should be closely monitored for correct stage of application. Application of FBN DIQUAT 240SN may cause the small stem attaching the pod to the chickpea plant to become brittle and lead to increased pod loss. Wait 4 to 7 days before combining the crop. It may be advantageous to harvest, and bin separately, chickpea grain from late maturing areas of the field. Use of higher water volumes will provide more complete coverage.

For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green.

For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Drydown is less complete in Kabuli type due to its thick pod wall.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage.

Germination of seed is not affected by FBN DIQUAT 240SN desiccation.

Flax (including low linolenic acid varieties)

FBN DIQUAT 240SN is an effective desiccant aiding in the harvest of flax (including low linolenic acid varieties). Desiccation reduces the period of time from maturity to harvest, reduces wear and tear on harvesting equipment, reduces harvest time, decreases the moisture content of the seed and eliminates the need for swathing.

Spray when the crop is at the 75% boll turn stage (normal swathing time).

Do not apply before 75% boll turn. Harvest when the flaxseed tests 'dry'.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage.

Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Germination of seed is not affected by FBN DIQUAT 240SN desiccation of the crop.

Fruit

Perennial Grass Suppression Under Apple Trees

See Table 1 for rates.

DO NOT APPLY BY AIR.

Legumes

Alfalfa, Birdsfoot Trefoil, Red Clover, and White Clover Seed Crops

To prevent seed pod shattering and loss of seed, the interval between spraying and harvest should not exceed 7 days. NOTES: 1) Birdsfoot trefoil plants under drought or disease stress may be subject to damage when desiccated with FBN DIQUAT 240SN. 2) Do not use FBN DIQUAT 240SN if a residual herbicide has been used on the legumes within the past 12 months.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Lentils

Apply FBN DIQUAT 240SN at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and seeds rattle. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs.

FBN DIQUAT 240SN applied to lentils under prolonged drought stress, rainfall, cool temperatures and high humidity will provide slower and less effective desiccation compared to applications made under normal growing conditions. If these conditions exist prior to application, use the highest registered rate of FBN DIQUAT 240SN for lentils as well as the highest registered water volume to obtain the best activity.

Harvest delays should be expected.

Mustard (condiment type only)

Spray when the crop is at the 75% seed turn (green to brown) stage. Do not apply when the crop is immature or past the recommended stage of maturity. Commence combining no later than 14 days after application. **NOTE:** Pod drop and some shattering can occur in high winds in the standing crop.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Apply by means of an aircraft fitted to apply uniform spray coverage.

Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)

Weed Control in Non-Crop Land

For the top kill of weeds, FBN DIQUAT 240SN will provide a rapid top-kill of weeds and grasses when applied as a foliar spray. FBN DIQUAT 240SN may be added to tank mixes of certain soil sterilants where immediate top kill and long term soil sterilization is required. The combined use with soil sterilants should be based on previous experimental experience, and recommendations on the label of the residual herbicide.

DO NOT APPLY BY AIR.

Oats - Corn Spurry Control

FBN DIQUAT 240SN, when applied by ground sprayer as recommended in Table 1 will burn corn spurry and give a temporary burning of the exposed oats leaves, but the plants quickly recover. Do not use any surfactant.

DO NOT APPLY BY AIR.

Peas

This treatment does not mature peas. Because pea swaths are at considerable risk to wind losses, straight cutting should be considered. Timing is vital as premature desiccation will result in yield loss: crops should be closely monitored. Commence combining when the peas test "dry".

FBN DIQUAT 240SN applied to peas under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of FBN DIQUAT 240SN for peas as well as the highest registered water volume to obtain the best activity.

With indeterminate varieties, apply FBN DIQUAT 240SN when the lower pods of most plants are ripe, dry, translucent and shrunken, with enclosed seeds detached from the pods. Middle pods will be somewhat shrunken and leathery, and the seed will split when squeezed. Desiccation will dry out upper pods and green plant growth, leaving bottom and middle pods with the highest quality seed.

With determinate varieties, FBN DIQUAT 240SN should be applied when the top and upper middle pods are somewhat shrunken and leathery and seeds in these pods split when squeezed. The lower middle and bottom pods are ripe and dry, translucent and shrunken, with seeds enclosed in these pods detached.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Sweet White Lupins

Apply FBN DIQUAT 240SN once per season for pre-harvest desiccation. Spray when the pods are brown and the internal seed (endosperm) yellow when cut. Wait at least 7 days before harvesting. Do not add wetters, spreaders or stickers to the spray solution. Ground rig application only. Ground spraying may be done with any standard boom sprayer. DO NOT APPLY BY AIR.

Sunflowers

FBN DIQUAT 240SN is an effective desiccant aiding in the harvest of sunflower seed for seed, oil production and confectionery use. If specialized high clearance equipment is available, ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too tall or the ground too soft for ground rigs. Do not apply when the crop is immature.

Combine 15-20 days after spraying.

Vegetables and Field Crops

Stale Seedbed - Pre-emergent to crop, Post-emergent to Weeds on Stale Seedbed

For weed control in beans (all types), beets, carrots, cole crops, corn, onions, peas, cucumbers, soybeans and turnips, prepare a stale seedbed by early cultivation (at least two to four weeks in advance of seeding) to stimulate weed growth. Seed without further cultivation and with a minimum of soil disturbance.

Apply by ground sprayer 2.3 to 4.6 L of FBN DIQUAT 240SN (2.3 L for small weeds, 3 to 5 cm high, and 4.6 L for larger weeds) in 300 L or more of water per hectare to burn off emerged weeds either prior to seeding or after seeding, but three days before crop emergence. If grasses are present, use GRAMOXONE herbicide in place of FBN DIQUAT 240SN.

DO NOT APPLY BY AIR.

Vegetables

Inter-row, Directed Chemical Weeding of Vegetable Crops

For weed control between the rows after crop and weed emergence, use suitable protective equipment and spray nozzle to protect crop from spray. If grasses are present, use GRAMOXONE herbicide in place of FBN DIQUAT 240SN.

DO NOT APPLY BY AIR.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Farmer's Business Network Canada, Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Farmer's Business Network Canada, Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Farmer's Business Network Canada, Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

FABA BEANS

RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
1.25-1.7	Ground	225-550	Use higher	Apply 1 application only for crop desiccation.
1.7-2.3	Aerial	at least 45	spray rates for dense canopies and/or weedy crops	<p>Apply when the majority of the plants are ripe and dry. Pods will be fully filled and the bottom pods will be tan or black in colour.</p> <p>For ground or aerial application, use AGRAL 90 as a wetting and spreading agent, at a rate of 1 L for each 1000 L of spray mixture.</p> <p>Observe a 4 – 10 day pre-harvest interval (PHI).</p> <p>Spray pressure should be increased with high clearance sprayers (90 – 100 psi) to ensure adequate coverage of FBN DIQUAT 240SN in the lower stem area. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Desiccation of weeds is completed in a week. THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS. FBN DIQUAT 240SN applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of FBN DIQUAT 240SN for beans as well as the highest registered water volume to obtain the best activity. Timing is vital as premature desiccation will result in yield loss; crops should be closely monitored.</p>

Resistance-Management Recommendations

For resistance management, FBN DIQUAT 240SN is a Group 22 herbicide. Any weed population may contain or develop plants naturally resistant to FBN DIQUAT 240SN and other Group 22 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of FBN DIQUAT 240SN or other Group 22 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.

Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact company representatives at Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3256) or at www.fbn.com.

AGRAL[®] and GRAMOXONE[®] are trademarks of a Syngenta Group Company.

2020-3424
2021-02-18

****Container Label****

Group	3	Fungicide
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FBN Tebuconazole 250

Fungicide

Emulsion in Water

FOR CONTROL OR SUPPRESSION OF LISTED DISEASES IN WHEAT, BARLEY, OATS AND SOYBEAN

COMMERCIAL

ACTIVE INGREDIENT: Tebuconazole 250 g/L

REGISTRATION NUMBER 33779 PEST CONTROL PRODUCTS ACT

READ THE LABEL AND PAMPHLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN



DANGER POISON
CORROSIVE TO EYES

NET CONTENTS: 1L - Bulk

Product Information: 1-844-200-FARM (3276)

Farmer's Business Network Canada, Inc
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

In case of spills, poisoning or fire, telephone emergency response number 1-613-996-6666 (24 hours a day).

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. Fatal or poisonous if swallowed. Harmful if inhaled. Corrosive to the eye. DO NOT get in eyes. Avoid breathing vapor or spray mist.

Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and boots during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab and/or cockpit. In addition, wear protective eyewear (goggles or face shield) during mixing, loading, application, clean-up and repair.

Follow manufacturer's instructions for cleaning/maintaining the Personal Protective Clothing (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations:

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Apply only to agricultural crops when the potential for drift to areas of human habitation and human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

FIRST AID

In case of poisoning, call physician or Poison Control Centre immediately. Have patient lie down and keep quiet.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when

seeking medical attention.

TOXICOLOGICAL INFORMATION

The compound does not cause any definite symptoms that would be diagnostic.

To Physician: No specific antidote. Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS

Tebuconazole is persistent and will carryover. It is recommended that any products containing tebuconazole not be used in areas treated with this product during the previous season.

Toxic to birds, small wild animals, aquatic organisms, and non-target plants. Observe buffer zones specified under DIRECTIONS FOR USE and APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. Do not apply to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Runoff is hazardous to aquatic organisms in neighboring areas. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. To reduce the run off refer to the recommendations under "APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS".

STORAGE

Do not contaminate water, food or feed by storage or disposal.

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

LEAK OR SPILL PROCEDURE: Handle and open container in a manner as to prevent spillage. If container is leaking invert to prevent leakage. If the container is leaking or material is spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. In spill or leak incidents, keep unauthorized people away. For decontamination procedures or any other assistance that may be necessary, you may contact Farmer's Business Network Canada, Inc. at the 24 Hour Emergency Phone Number: 1-844-200-FARM (3276), or contact CANUTEC at 1-613-996-6666.

DISPOSAL

Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container: Do not reuse this container for any purpose. For disposal, this empty

container may be returned to the point of purchase (distributor/dealer).

Refillable Container: For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

Non-Returnable Container:

1. Triple or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

****Pamphlet Label****

Group	3	Fungicide
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FBN Tebuconazole 250

Fungicide

Emulsion in Water

FOR CONTROL OR SUPPRESSION OF LISTED DISEASES IN WHEAT, BARLEY, OATS AND SOYBEAN

COMMERCIAL

ACTIVE INGREDIENT: Tebuconazole 250 g/L

REGISTRATION NUMBER 33779 PEST CONTROL PRODUCTS ACT

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Farmer's Business Network Canada, Inc.
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In case of spills, poisoning or fire, telephone emergency response number 1-613-996-6666 (24 hours a day).

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. Fatal or poisonous if swallowed. Harmful if inhaled. Corrosive to the eye. DO NOT get in eyes. Avoid breathing vapor or spray mist.

Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and boots during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab and/or cockpit. In addition, wear protective eyewear (goggles or face shield) during mixing, loading, application, clean-up and repair.

Follow manufacturer's instructions for cleaning/maintaining the Personal Protective Clothing (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations:

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Apply only to agricultural crops when the potential for drift to areas of human habitation and human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or www.croplife.ca.

FIRST AID

In case of poisoning, call physician or Poison Control Centre immediately. Have patient lie down and keep quiet.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

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If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking

medical attention.

TOXICOLOGICAL INFORMATION

The compound does not cause any definite symptoms that would be diagnostic.

To Physician: No specific antidote. Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS

Tebuconazole is persistent and will carryover. It is recommended that any products containing tebuconazole not be used in areas treated with this product during the previous season.

Toxic to birds, small wild animals, aquatic organisms, and non-target plants. Observe buffer zones specified under DIRECTIONS FOR USE and APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. Do not apply to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Runoff is hazardous to aquatic organisms in neighboring areas. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. To reduce the run off refer to the recommendations under "APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS".

STORAGE

Do not contaminate water, food or feed by storage or disposal.

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

LEAK OR SPILL PROCEDURE: Handle and open container in a manner as to prevent spillage. If container is leaking invert to prevent leakage. If the container is leaking or material is spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. In spill or leak incidents, keep unauthorized people away. For decontamination procedures or any other assistance that may be necessary, you may contact Farmer's Business Network Canada, Inc. at the 24 Hour Emergency Phone Number: 1-844-200-FARM (3276), or contact CANUTEC at 1-613-996-6666.

DISPOSAL

Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container: Do not reuse this container for any purpose. For disposal, this empty container

may be returned to the point of purchase (distributor/dealer).

Refillable Container: For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

Non-Returnable Container:

1. Triple or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

DIRECTIONS FOR USE:

IMPORTANT: Read this entire label before using FBN Tebuconazole 250. **Ensure no bystanders are present during the application operation.** Only protected handlers may be in the area during application. Use mechanical flaggers only. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Spray Volume: **F B N** Tebuconazole 250 should be applied in a minimum of 100 litres of spray solution per hectare by ground sprayer or 47 litres of spray solution per hectare by aircraft spray equipment. Check equipment calibration frequently.

Chemigation: Do not apply this product through any type of irrigation system.

Mixing: Add the required amount of FBN Tebuconazole 250 into the spray tank while filling with water to the desired level. Operate the agitator while mixing. If other materials are added to the spray tank, the FBN Tebuconazole 250 should be thoroughly dispersed prior to the addition of other materials.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Buffer zones:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands). In addition to the buffer zones specified in the table below, users must also observe buffer zones specified under APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS.

Method of Application	Crop		Buffer Zones (metres) Required for the Protection of:
			Terrestrial Habitats
Field sprayer	Wheat (spring, winter and durum), Barley, Oats and Soybean		1
Aerial	Wheat (spring, winter and durum), Barley, Oats and Soybean	Fixed and rotary wing	15

The spray drift buffer zones required for the protection of terrestrial habitats for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

Cereals (Wheat, Barley and Oats):

CROP	DISEASES	DOSAGE OF FBN Tebuconazole 250 Fungicide	REMARKS
<p>Wheat (spring, winter and durum)</p>	<p>For suppression of:</p> <p>Fusarium head blight (scab) (<i>Gibberella zeae</i> / <i>Fusarium graminearum</i>)</p> <p>For control of:</p> <p>Septoria glume blotch (<i>Stagonospora nodorum</i>)</p>	500 mL/ha	<ul style="list-style-type: none"> • <i>Fusarium</i> head blight (scab) risk is greater when the weather is warm and wet at the flowering to soft dough stages. • The application of FBN Tebuconazole 250 for protection against <i>Fusarium</i> head blight (scab) should be considered when these weather conditions are forecasted for this stage of wheat development. • Timing of application is critical: For suppression of Fusarium Head Blight and control of Septoria glume blotch, apply FBN Tebuconazole 250 within the time period from when at least 75% of the wheat heads on the main stem are fully emerged to when 50% of the heads on the main stem are in flower. • Spray coverage is essential: Spray equipment must be set up to ensure thorough coverage of all wheat heads. • FBN Tebuconazole 250 may be applied by ground or air equipment. • GROUND APPLICATION: Apply specified dosage in a minimum of 100 L of water per hectare. • AERIAL APPLICATION: Apply specified dosage in a minimum of 47 L of water per hectare.
	<p>For control of:</p> <p>Rusts (Leaf, Stem and Stripe) (<i>Puccinia triticina</i>, <i>P. graminis</i>, <i>P. striiformis</i>)</p> <p>Septoria Leaf Blotch (<i>Septoria tritici</i>)</p> <p>Tan Spot (<i>Pyrenophora tritici-repentis</i>)</p>	375-500 mL/ha	<ul style="list-style-type: none"> • Apply FBN Tebuconazole 250 to leaf foliage at the first sign or very early stage of disease, especially if weather conditions are conducive to disease development, up to the end of the flowering stage. • Where a rate range is specified, use of the higher rate should be considered when weather conditions are conducive to heavy disease development. • FBN Tebuconazole 250 may be applied by ground or air equipment. • GROUND APPLICATION: Apply specified dosage in a minimum of 100 L of water per hectare.
	<p>For control of:</p> <p>Powdery Mildew (<i>Erysiphe graminis</i>)</p>	500 mL/ha	<ul style="list-style-type: none"> • AERIAL APPLICATION: Apply specified dosage in a minimum of 47 L of water per hectare.

Barley	For control of: Net Blotch (<i>Pyrenophora teres</i>) Spot Blotch (<i>Cochliobolus sativus</i>) Scald (<i>Rhynchosporium secalis</i>) Rusts (Leaf, Stem and Stripe) (<i>Puccinia hordei</i> , <i>P. graminis</i> , <i>P. striiformis</i>) Speckled Leaf Blotch (<i>Septoria passerinii</i>) Powdery Mildew (<i>Erysiphe graminis</i>)	375-500 mL/ha	<ul style="list-style-type: none"> • Apply FBN Tebuconazole 250 at the very early stages of disease development. • Where a rate range is specified, use of the higher rate should be considered when weather conditions are conducive to heavy disease development. • FBN Tebuconazole 250 may be applied by ground or air equipment. • GROUND APPLICATION: Apply specified dosage in a minimum of 100 L of water per hectare. • AERIAL APPLICATION: Apply specified dosage in a minimum of 47 L of water per hectare.
Oats	For control of: Crown Rust (<i>Puccinia coronata</i>) Stem Rust (<i>Puccinia graminis</i>)	375 mL/ha	<ul style="list-style-type: none"> • Apply FBN Tebuconazole 250 at the very early stages of disease development. • Where a rate range is specified, use of the higher rate should be considered when weather conditions are conducive to heavy disease development. • FBN Tebuconazole 250 may be applied by ground or air equipment. • GROUND APPLICATION: Apply specified dosage in a minimum of 100 L of water per hectare. • AERIAL APPLICATION: Apply specified dosage in a minimum of 47 L of water per hectare.
	Speckled leaf blotch and black stem (<i>Phaeosphaeria [avenaria]</i>)	375-500 mL/ha	

Restrictions: A maximum of one application of FBN Tebuconazole 250 may be applied per crop season to wheat, barley and oats. Applications may not be made within 36 days of harvest. Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment with FBN Tebuconazole 250. Straw cut after harvest may be fed or used for bedding.

Resistance Management Advisory for Cereal Crops:

Repeated application of standalone DMI Fungicides should not be used on the same crop in one season against risky pathogens such as cereal powdery mildew in areas of high disease pressure for that particular pathogen. Mixture products, tank-mixtures or alternation with fungicides having a different mode of action have been shown to protect against the development of resistant forms of disease.

Soybean:

CROP	DISEASES	DOSAGE OF FBN Tebuconazole 250 Fungicide	REMARKS
Soybean	Asian Soybean Rust (<i>Phakopsora pachyrhizi</i>) Frogeye Leaf Spot	375-500 mL/ha	<ul style="list-style-type: none"> • Apply FBN Tebuconazole 250 when first symptoms of disease can be found or when the risk of infection is imminent. • Use the higher rate when disease pressure is severe.

	<p>(<i>Cercospora sojina</i>)</p> <p>Suppression of Powdery Mildew (<i>Microsphaera diffusa</i>)</p>		<ul style="list-style-type: none"> • FBN Tebuconazole 250 may be applied by ground or air equipment • GROUND APPLICATION: Apply specified dosage in a minimum of 100 L of water per hectare. • AERIAL APPLICATION: Apply specified dosage in a minimum of 47 L of water per hectare.
<p>Restrictions: A maximum of one application of FBN Tebuconazole 250 may be applied per crop season. Applications may not be made within 20 days of harvest.</p>			

RESISTANCE MANAGEMENT:

For resistance management, FBN Tebuconazole 250 contains a Group 3 fungicide. Any fungal population may contain individuals naturally resistant to FBN Tebuconazole 250 and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay fungicide resistance:

Where possible, rotate the use of FBN Tebuconazole 250 or other Group 3 fungicides with different groups of fungicides that control the same pathogens.

Do not apply more than the indicated maximum number of applications specified for each crop in the DIRECTIONS FOR USE.

Fungicide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.

Where possible, make use of predictive disease models to effectively time fungicide applications.

Monitor treated fungal populations for sign of resistance development. Notify Farmer’s Business Network Canada, Inc. if reduced sensitivity of the pathogen to FBN Tebuconazole 250 is suspected.

If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, if available.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.

For further information and to report suspected resistance, contact a Farmer’s Business Network Canada, Inc. representative at 1-844-200-FARM (3276) or at www.croplife.ca.

APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS:

OBSERVE THE FOLLOWING PRECAUTIONS WHEN SPRAYING IN THE VICINITY OF AQUATIC AREAS SUCH AS LAKES, RESERVOIRS, RIVERS, PERMANENT STREAMS, MARSHES OR NATURAL PONDS, AND ESTUARIES.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product should be used only in alternate years.

Do not apply by ground or air within 30 metres of aquatic areas listed above.

Do not cultivate within 3 metres of an aquatic area to allow growth of a vegetative filter strip.

The aquatic buffer zone of 30 meters **may not** be modified by the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

SPRAY DRIFT MANAGEMENT FOR AERIAL AND GROUND APPLICATIONS

For the protection of non-target habitats, overspray or drift to any body of water or other environmentally sensitive habitats must be avoided. Do not apply under conditions where drift to an unprotected person(s), occupied dwelling, or to food, forage, or other plantings can occur.

The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions.

1. **SPRAY BOOM:** For aerial applications, the **spray boom** should be mounted on the aircraft so as to minimize drift caused by wing tip vortices. The minimum practical boom length should be used and must not exceed 65% of the wing span or rotor diameter.
2. **DROPLET SIZE:** An important factor influencing drift is the droplet size. Small droplets (<150 to 200 microns) drift to a greater extent than large droplets. Within typical equipment specifications, applications should be made to deliver the largest **droplet spectrum** that provides sufficient control and coverage. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible and by avoiding excessive spray boom pressure.
3. **SPRAY HEIGHT:** For aerial applications, spray should be released at the lowest height consistent with efficacy and flight safety. Applications more than 3 metres above the crop canopy should be avoided.
4. **WIND:** Do not apply during periods of dead calm, when winds are gusty or when wind speed is greater than 16 km/hour at flying height at the site of application. Use extreme caution when any body of water or other environmentally sensitive habitat is on downwind side of aircraft.
5. **TEMPERATURE INVERSIONS:** Do not make aerial or ground applications during temperature inversions. Drift potential is high during temperature inversions. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a cloud. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical mixing.
6. **HUMIDITY AND TEMPERATURE:** Low humidity and high temperatures increase the evaporation rate of spray droplets and therefore the likelihood of increased spray drift. Avoid spraying during conditions of low humidity and/or high temperature.

AERIAL APPLICATION LABEL INSTRUCTIONS

Directions For use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of a spotter plane is recommended. Use mechanical flaggers only.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear coveralls, chemical resistant gloves, and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 47 litres per hectare.

ROTATIONAL CROPS

Treated areas may be replanted immediately following harvest with any crop listed on this label. For crops not listed on this label, do not plant back within 120 days of last application.

All other products mentioned are trademarks of their respective companies.

2020-04-24
2020-0910 (revised 2020-05-26)

GROUP	9	HERBICIDE
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FLAME GLYPHOSATE® 360

HERBICIDE AGRICULTURAL AND INDUSTRIAL
Solution



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L

ACTIVE INGREDIENT: Glyphosate, 360 grams acid equivalent per litre present as the isopropylamine salt

Registration No.: 33088 Pest Control Products Act

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

EMERGENCY TELEPHONE NUMBER

IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL CANUTEC, FREE DAY OR
NIGHT, 1-613-996-6666

READ ENTIRE LABEL CAREFULLY BEFORE USE

FLAME GLYPHOSATE 360 is a non-selective, non-residual herbicide containing 360 g/L glyphosate (free acid) as isopropylamine salt, formulated as a water-soluble liquid. It is used for the control of most herbaceous weeds in agricultural and industrial sites. The product is absorbed through the foliage and translocated throughout the plant down to the root system. Visible symptoms such as gradual wilting and yellowing are usually obvious within 2 to 4 days of application to annual weeds, but may not be apparent for 7 to 10 days on perennial weeds.

GENERAL PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- MAY CAUSE EYE IRRITATION
- HARMFUL IF SWALLOWED
- AVOID CONTACT WITH EYES AND SKIN
- WASH HANDS AND EXPOSED SKIN BEFORE EATING, DRINKING, OR SMOKING, AND AFTER WORK

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S contact 1-888-931-2530 or www.croplife.ca.

FOR GOOD AGRICULTURAL PRACTICE:

- WEAR GLOVES, COVERALLS, AND EYE PROTECTION DURING MIXING, LOADING, CLEANUP, AND REPAIR PROCEDURES
- WASH SPLASHES FROM SKIN AND EYES IMMEDIATELY

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

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TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS

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- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic, or plastic-lined containers. **DO NOT MIX, STORE, OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or the spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury if ignited by open flame, spark, welder's torch, lighted cigarette, or other ignition source.

STORAGE

KEEP AWAY FROM FOOD, DRINK, AND ANIMAL FEEDSTUFFS. KEEP ONLY IN ORIGINAL CONTAINER, TIGHTLY CLOSED.

IN CASE OF SPILL:

Contact the provincial regulatory authorities and Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) in case of spill, and for clean-up of spills. For environmental concerns call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

DISPOSAL OF CONTAINERS

RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location for the nearest collection site. Before taking the container to the collection site:

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RETURNABLE-REFILLABLE CONTAINERS

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NOTICE TO USER:

This control product is to be used only in accordance with the directions on this label. It is an offense under the *Pest Control Products Act* to use a control product in a way that is inconsistent with the directions on the label.

FLAME GLYPHOSATE® 360

HERBICIDE AGRICULTURAL AND INDUSTRIAL
Solution



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L

ACTIVE INGREDIENT: Glyphosate 360 g/L grams acid equivalent per litre present as the isopropylamine salt

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta Canada T1V 1M7

1-844-200-FARM (3276)

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Registration No.: 33088 *Pest Control Products Act*

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

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NOTICE TO USER:

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PRECAUTIONS

Avoid contact with desirable vegetation by direct application or spray drift as severe injury or destruction may result. Avoid drift or overspray to non-target vegetation and wildlife habitats.

DO NOT USE IN GREENHOUSES.

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

The restricted entry interval is 12 hours after application for all agricultural uses.

Drain and clean sprayer and parts immediately after using this product.

Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Reduced results may occur if water which contains suspended soil is used; examples are water from ponds and ditches. Poor control may also occur when treating weeds heavily covered with dust.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

GENERAL PRODUCT INFORMATION

FLAME GLYPHOSATE 360 is a water-soluble herbicide for non-selective weed control. FLAME GLYPHOSATE 360 is applied as a foliar spray for the control of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

FLAME GLYPHOSATE 360 moves through the plant from the point of foliage contact into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds effects may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down the activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant, which advances to complete browning of above ground growth and deterioration of underground plant parts.

FLAME GLYPHOSATE 360 does not provide residual weed control. For subsequent residual weed control, apply a registered residual herbicide. Read and carefully observe cautionary statements and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. **Do not apply if rainfall is forecast for the time of application.**

DIRECTIONS FOR USE

GENERAL APPLICATION NOTES:

Results are best when weeds are actively growing. If weeds have been mowed, allow to return to recommended growth stage. Delay application until vegetation has emerged to the stage described for the control of such vegetation under the ANNUAL and PERENNIAL WEED CONTROL charts of this booklet to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or rootstocks of perennials will not be affected by the spray and will continue to grow. For this reason, best control of most perennial weeds is obtained when the treatment is made at the late growth stages approaching maturity.

Always use higher rates of FLAME GLYPHOSATE 360 per hectare within the recommended range when weed growth is heavy or dense or weeds are growing in an undisturbed (uncultivated) area. **Do not treat weeds under poor growing conditions such as drought, flooding, frost, high temperatures, disease or insect damage as reduced weed control may result.** Reduced results may also occur when treating weeds heavily covered with dust. Heavy rainfall immediately after application may wash the product off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

FLAME GLYPHOSATE 360 should only be mixed with products recommended on this label. Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

TANK MIXES

FLAME GLYPHOSATE 360 may be used with the following surfactants: Agral 90[®], Ag-Surf[®], Companion[™]. See charts on **TANK MIXES FOR ANNUAL** and for **PERENNIAL WEED CONTROL**.

FLAME GLYPHOSATE 360 may be used with the following herbicides:

Banvel[®], Oracle[®], Pardner[®], Pursuit[®], 2,4-D low volatile ester or amine formulations: See section on MINIMUM AND ZERO TILLAGE TANK MIXES.

Princep Nine-T[®], Simadex[®]: See section on **TREE, VINE, AND BERRY CROPS**.

DyCler 480[®], Simazine 80W[®], Simadex[®] Flowable, 2,4-D amine: See section on

NONCROPLAND AND INDUSTRIAL USES

Always refer to the surfactant and herbicide labels for specific instructions regarding the use of that product.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Trade Name

Agral 90[®], DyCler[®], Princep Nine-T[®]

Ag-Surf[®]

Banvel[®], Pursuit[®]

Companion[™]

Pardner[®], Simadex[®]

Oracle

Trademark Owners

Syngenta

IPCO

BASF

Dow Chemical Co.

Bayer CropScience

Gharda USA, Inc

VEGETATION CONTROLLED

FLAME GLYPHOSATE 360 controls many annual and perennial grasses, broadleaf weeds and woody brush and trees when applied as recommended and under the conditions described. For information on how to control specific weeds, including herbicide rate, refer to the ANNUAL WEED CONTROL and PERENNIAL WEED CONTROL charts of this label. The following is a partial list of the weeds controlled:

Table 1: Annual weed control by FLAME GLYPHOSATE 360®

Weed Type: Annual Weeds	Genus and Species
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Broomcorn millet	<i>Panicum miliaceum</i>
Cheatgrass	<i>Bromus tectorum</i>
Chickweed	<i>Stellaria media</i>
Cocklebur	<i>Xanthium strumarium</i>
Corn Spurry	<i>Spergula arvensis</i>
Common Lamb's quarters	<i>Chenopodium album</i>
Cow Cockle	<i>Saponaria vaccaria</i>
Dodder	<i>Cuscuta spp.</i>
Downy brome	<i>Bromus tectorum</i>
Eastern black flowering nightshade	<i>Solanum ptycanthum</i>
Fall panicgrass	<i>Panicum dichotomiflorum</i>
Fleabane (Canada)	<i>Erigeron canadensis</i>
Flixweed	<i>Descurainia sophia</i>
Giant foxtail	<i>Setaria faberii</i>
Green foxtail	<i>Setaria viridis</i>
Green Smartweed	<i>Polygonum scabrum</i>
Hairy crabgrass	<i>Digitaria sanguinalis</i>
Hempnettle	<i>Galeopsis tetrahit</i>
Kochia	<i>Kochia scoparia</i>
Lady's thumb	<i>Polygonum persicaria</i>
Narrow-leaf hawk's beard	<i>Crepis tectorum</i>
Narrow-leaf vetch	<i>Vicia angustifolia</i>
Night flowering catchfly	<i>Silene noctiflora</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Persian darnel	<i>Lolium persicum</i>
Prickly lettuce	<i>Lactuca scariola</i>
Ragweed (common)	<i>Ambrosia artemisiifolia</i>

Weed Type: Annual Weeds	Genus and Species
Redroot Pigweed	<i>Amaranthus retroflexus</i>
Russian thistle	<i>Salsola pestifier</i>
Shepherd's purse	<i>Capsella bursa-pastoris</i>
Smooth crabgrass	<i>Digitaria ischaemum</i>
Smooth Pigweed	<i>Amaranthus hybridus</i>
Sowthistle (annual)	<i>Sonchus oleraceus</i>
Stinkweed	<i>Thlaspi arvense</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Volunteer barley	<i>Hordeum spp.</i>
Volunteer canola	<i>Brassica spp.</i>
Volunteer corn	<i>Zea mays</i>
Volunteer flax	<i>Linum spp.</i>
Volunteer wheat	<i>Triticum spp.</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
Wild mustard	<i>Sinapsis arvensis</i>
Wild oats	<i>Avena fatua</i>
Wild tomato	<i>Solanum triflorum</i>
Yellow foxtail	<i>Setaria glauca</i>

Table 2: Perennial weeds control by FLAME GLYPHOSATE 360®

Weed Type: Perennial Weeds	Genus and Species
Alfalfa	<i>Medicago sativa</i>
Bluegrass (Canada)	<i>Poa compressa</i>
Bluegrass (Kentucky)	<i>Poa pratensis</i>
Brome grass (smooth)	<i>Bromus inermis</i>
Canada thistle	<i>Cirsium arvense</i>
Common cattail	<i>Typha latifolia</i>
Common milkweed	<i>Asclepias syriaca</i>
Cottontop	<i>Eriophorum chamissonis</i>
Curled dock	<i>Rumex crispus</i>
Dandelion	<i>Taraxacum officinale</i>
Foxtail barley	<i>Hordeum jubatum</i>
Hemp dogbane	<i>Apocynum cannabinum</i>
Hoary cress	<i>Cardaria draba</i>
Japanese knotweed	<i>Polygonum cuspidatum</i>
Perennial sowthistle	<i>Sonchus arvensis</i>
Poison ivy	<i>Rhus radicans</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Quackgrass	<i>Elytrigia repens</i>
Toad flax	<i>Linaria vulgaris</i>
Wormwood (Absinth)	<i>Artemisia absinthium</i>
Yellow Nutsedge	<i>Cyperus esculentus</i>

Table 3: Woody weeds, bush and tree control by FLAME GLYPHOSATE 360®

Weed Type: Bush and Trees	Genus and Species
Alder	<i>Alnus spp.</i>
Birch	<i>Betula spp.</i>
Broadleaf meadowsweet	<i>Spiraea latifolia</i>
Canadian rhododendron	<i>Rhododendron canadense</i>
Cedar	<i>Thuja spp.</i>
Cherry	<i>Prunus spp.</i>
Douglas fir	<i>Pseudotsuga spp.</i>
Hemlock	<i>Tsuga spp.</i>
Maple	<i>Acer spp.</i>
Mountain-fly honeysuckle	<i>Lonicera villosa</i>
Pine	<i>Pinus spp.</i>
Poplar	<i>Populus spp.</i>
Raspberry	<i>Rubus spp.</i>
Salmonberry	<i>Rubus spectabilis</i>
Sheep laurel	<i>Kalmia angustifolia</i>
Snowberry (western)	<i>Symphoricarpos occidentalis</i>
Sweet fern	<i>Comptonia peregrina</i>
Willow	<i>Salix spp.</i>
Withrod	<i>Viburnum cassinoides</i>

RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, FLAME GLYPHOSATE 360[®] Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to FLAME GLYPHOSATE 360[®] Herbicide and other Group 9 herbicides. The resistance biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of FLAME GLYPHOSATE 360[®] Herbicide or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance contact Farmer's Business Network Canada, Inc. at 1-844-200-3276.

APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS

GROUND BOOM AND BOOMLESS SPRAYERS

Mixing: For field or industrial type sprayers, fill the spray tank with one half the required amount of water. Add the proper amount of FLAME GLYPHOSATE 360[®] herbicide (see appropriate chart) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent any excessive foaming. Remove the hose from the tank immediately after filling to avoid back siphoning into water source (a one-way valve should be installed to prevent back siphoning). Use of mechanical agitators may cause excessive foaming. By-pass lines should terminate at the bottom of the tank.

Application: Use flat fan nozzles in boom sprayers. To control perennial weeds, woody brush, and trees as listed, apply FLAME GLYPHOSATE 360[®] in 50 to 300 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure. To control annual weeds as listed, apply FLAME GLYPHOSATE 360[®] in 50 L to 100 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure.

KNAPSACK SPRAYERS, HAND HELD & HIGH-VOLUME EQUIPMENT

High volume spraying utilizes handguns or other suitable nozzle arrangements to apply a directed spray to weeds, woody brush, and trees. Use coarse sprays only.

Mixing: Mix the proper amount of FLAME GLYPHOSATE 360 with water in a large container. Fill the sprayer with the mixed solution. Unless otherwise stated, make a 1% solution of FLAME GLYPHOSATE 360 in water (1 L of FLAME GLYPHOSATE 360 in 100 L of water). A 2% solution (2 L of FLAME GLYPHOSATE 360 in 100 L of water) should be used on harder to control perennials.

Application: Spray coverage should be uniform and complete. Apply on a spray-to-wet basis. Do not spray to the point of runoff. Hand gun application should be properly directed to avoid spraying desirable plants.

MIST BLOWERS

For control of woody weeds, brush, and trees listed in the VEGETATION CONTROLLED list, use the recommended rate of FLAME GLYPHOSATE 360 in at least 200 L of water per hectare.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

WIPER, WICK AND ROLLER EQUIPMENT

These applicators apply FLAME GLYPHOSATE 360 solution directly onto the weeds by contacting the weed with an absorbent material containing the herbicide solution. Weeds should be a minimum of 15 cm above the desired vegetation to prevent contact of FLAME GLYPHOSATE 360 with the desired vegetation.

Mixing: Mix the proper amount of FLAME GLYPHOSATE 360 with water in a large container. Use this mixed solution in the wiper, wick or roller equipment.

Application: These applicators can be used to control weeds in:

- Industrial sites, tree plantings, and non-crop sites as specified.
- The following agricultural crops:
 - o Apple, cherry, peach, pear and plum orchards, grape vineyards, soybeans, dry beans, strawberries, and cranberries (note: applications must be made before initial pod set in soybeans and dry beans).

The applicator should be adjusted so that the contact point of the wiper, roller, or wick is at least 5 cm above the desirable vegetation. Droplets or foam of the FLAME GLYPHOSATE 360 solution settling on desirable vegetation may result in discoloration, stunting or destruction. Best results are obtained when more of the weed is exposed to the herbicide solution. It is recommended that two applications be made in opposite directions, if possible. Weeds not contacted will not be affected. This may occur in dense clumps, severe infestation, or when the height of the weeds varies so that not all weeds are contacted. In these instances, a repeat treatment may be necessary.

AVOID CONTACT WITH DESIRABLE VEGETATION

Wiper, Wick, Roller Application Notes:

- Maintain wiper equipment in good operating condition. Care must be taken with all types of wipers to ensure that the absorbent material does not become oversaturated, causing the herbicide to drip onto desirable vegetation.
- Avoid leakage or dripping onto desirable vegetation.
- Adjust height of wiper applicator to ensure proper contact with weeds.
- Keep wiping surfaces clean.
- Maintain recommended roller speed on roller applicators while in use.
- DO NOT use wiper equipment when weeds are wet.
- DO NOT operate equipment at ground speeds less than 4 or greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to ensure good coverage of weeds.
- Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.
- Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended FLAME GLYPHOSATE 360 herbicide solution directly to the weed.
- Mix only the amount of solution to be used during a one-day period, as reduced activity may result from use of leftover solution. Thoroughly drain and clean all equipment immediately after use.

AERIAL APPLICATION

Aerial Application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h (preharvest) or 8 km/h (rights-of-way) at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572,1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Directions for Use (for additional information see section on Aerial Application for Industrial Rights-of-Way ONLY)

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Aerial Use Precautions

Apply only when weather conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following: Volume: Apply the recommended rate in a spray volume of 30-100 L/ha.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of FLAME GLYPHOSATE 360 accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

BUFFER ZONES:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies). Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Agricultural, forestry and non-cropland systems		Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
			Aquatic habitats	Terrestrial habitats
Agricultural crop system and ground boom application method				
Pre-seeding applications for cranberry, filberts, hazelnut and all other crops. Established pasture and summer fallow.		1	1	1
Filberts or hazelnut		4	1	1
Strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)		2	1	2
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, forage grasses and legume including seed production		3	1	2
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)		4	1	2
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes		3	1	3
Agricultural crop system and airblast application method (including mist blower)				
Pasture		1	20	30
Turfgrass (Prior to establishment or renovation)		2	25	35
Forest plant system and ground boom application method				
<i>Forest and woodlands > 500 ha</i> Site preparation		2	1	NR
Forest plant system and airblast application method (including mist blower)				
<i>Forest and woodlands > 500 ha</i> Site preparation		2	1	NR
Non-cropland system and ground boom application method				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	3*
Non-cropland system and airblast application method (including mist blower)				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	30*
Agricultural crop system and aerial application method				
	Wing type			
Crops for pre-seeding treatments only	Fixed and rotary wing	1	15	20
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30
Forage grasses and legume including seed production	Fixed and rotary wing	1	20	40
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40
Summer fallow	Fixed wing	1	20	45
	Rotary wing	1	20	40
Pasture	Fixed wing	1	30	70
	Rotary wing	1	30	55

Forestry system and aerial application method				
<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	10	NR
	Rotary wing	2	1	NR
<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	5	NR
	Rotary wing	2	1	NR
Non-cropland system and aerial application method				
Non-crop land and industrial uses: rights-of way areas only	Fixed wing	3	100	NR
	Rotary wing	3	60	NR

*Buffer zones for the protection of terrestrial habitats are not required for forestry uses or for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

NR = Not Required

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

AGRICULTURAL AND CROPLAND USES

The following are use situations for FLAME GLYPHOSATE 360 herbicide. The type of vegetation present and the use situation will dictate the choice of application equipment. Information on the equipment selected to apply FLAME GLYPHOSATE 360 can be found in the APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section. Use rates can then be selected from the ANNUAL and PERENNIAL WEED CONTROL charts.

PREPLANT TREATMENT

FLAME GLYPHOSATE 360 can be applied prior to planting of all crops for control of emerged weeds listed on the label. Ensure weeds are at the recommended growth stage at the time of application. Apply BEFORE seeding or transplanting crop.

SUMMER FALLOW

FLAME GLYPHOSATE 360 may be applied in summer fallow to control weeds listed on the label. Ensure weeds are at the recommended growth stage and actively growing at the time of application. Reduced control may result if weeds are drought stressed. Repeat treatments may be necessary to control later germinating weeds.

MINIMUM AND ZERO TILLAGE SYSTEMS (ALL FIELD CROPS INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES AND CORN)

FLAME GLYPHOSATE 360 may be applied before or after seeding but before crop emerges for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Weeds should be treated at the growth stage according to the ANNUAL and PERENNIAL WEED CONTROL charts. DO NOT APPLY AFTER CROP EMERGENCE.

Since FLAME GLYPHOSATE 360 does not provide residual control, application too far in advance of seeding may allow weeds to germinate between application and crop emergence.

MINIMUM AND ZERO TILLAGE TANK MIXES

FLAME GLYPHOSATE 360 Herbicide plus Pardner[®] (bromoxynil) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley, and oats. See chart on TANK MIXES for ANNUAL WEED CONTROL.

FLAME GLYPHOSATE 360 Herbicide plus Pursuit[®] can be applied before or after seeding, but prior to crop emergence in soybeans. FLAME GLYPHOSATE 360 herbicide will control emerged weeds listed on this label when applied as directed (see VEGETATION CONTROLLED lists). Pursuit[®] will control weeds germinating from seed. Add the recommended rates of both products in 100 L of water/ha following the instructions on the Pursuit[®] herbicide label.

Refer to the Pursuit[®] label for further information on weeds controlled, application directions, and use precautions. Only SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT and WINTER WHEAT may be planted the season following a Pursuit[®] application. Winter wheat may be planted the same year as a Pursuit[®] application to soybeans, but not earlier than 120 days after the application.

DO NOT APPLY AFTER CROP EMERGENCE.

**Table 4: FLAME GLYPHOSATE 360® TANK MIXES for ANNUAL WEED CONTROL:
Summer fallow & minimum tillage systems treatment rates**

TANK MIXTURES	RATE L/ha	WEEDS CONTROLLED++	COMMENTS: (Apply in 50-100 L/ha water; add 350 mL/ha surfactant)
FLAME GLYPHOSATE 360 + Banvel® or Oracle®	0.75 - 1.0 + 0.29	Volunteer cereals, wild oats, green foxtail, volunteer canola (rapeseed), wild mustard, flixweed*, lamb's quarters, lady's thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *FLAME GLYPHOSATE 360 applied at 1.0 L/ha rate only. **Suppression only. See other tank mixtures for control options.
FLAME GLYPHOSATE 360 + Pardner®	0.75 - 1.0 + 1.25	Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's thumb, stinkweed, wild buckwheat*, redroot pigweed**, kochia**, wild oats**	This tank mix for summer fallow use; and prior to planting wheat, oats, and barley in minimum tillage systems. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use FLAME GLYPHOSATE 360 at 1.0L/ha rate for wild buckwheat control. **1.0L/ha rate, suppression only. See other tank mixtures for control options.
FLAME GLYPHOSATE 360® + 2,4-D#	0.75 - 1.0 + 1.2	Volunteer cereals, wild oats*, green foxtail*, volunteer canola (rapeseed), wild mustard, Flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters**, Russian thistle**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use FLAME GLYPHOSATE 360 at 1.0 L/ha rate only for wild oat and green foxtail control. **Suppression only. See other tank mixtures for control options.

#0.56 kg ai/ha of 2,4-D. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

++For foxtail barley suppression, refer to chart on ANNUAL WEED CONTROL.

NOTE: All FLAME GLYPHOSATE 360 herbicide tank mixtures for annual weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf® and Companion™. Surfactant should be added at a rate of 350 mL per hectare in 50-100 L of clean water.

Table 5: FLAME GLYPHOSATE 360[®] tank mixtures for perennial weed control summer fallow or fall stubble

TANK MIXTURES	RATE L/ha	WEEDS CONTROLLED	COMMENTS:
FLAME GLYPHOSATE 360 [®] + Banvel [®] or Oracle [®]	1.7 L/ha + 1.25 L/ha	Canada thistle, perennial sow thistle	Apply in 100-200 L/ha water; add 350 mL/ha surfactant Summer fallow: Cultivate in the spring and apply when majority of thistles are 15 to 25 cm tall, and before the bud stage. Cultivate 3 weeks after application. Fall stubble: Apply to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: All FLAME GLYPHOSATE 360[®] herbicide tank mixtures for perennial weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90[®], Ag-Surf[®], or Companion[™].

Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mix.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

FALL STUBBLE

Apply in the fall as a postharvest stubble treatment for control of perennial weeds including quackgrass and Canada thistle. Allow the Canada thistle and quackgrass to regrow to 20-25 cm tall. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frost prior to treatment may decrease control.

SPOT TREATMENT (IN CROP)

FLAME GLYPHOSATE 360 may be applied for the control of Canada thistle, quackgrass and other perennial weeds in forage crops, barley, wheat, oats, soybeans and legumes, including seed production. Treatments may be made up to heading of small grain, initial pod set on soybeans and legumes and emergence of seed heads. Avoid drift beyond the treated area.

Application can be made using a boom sprayer, knapsack, or high-volume equipment (see APPLICATION AND MIXING INSTRUCTIONS section). Applications should be made using the same growth stages as listed in the ANNUAL and PERENNIAL WEED CONTROL charts. Or, use a 1% solution for annul weeds and quackgrass and a 2% solution for other perennial weeds (a 1% solution equals 1 litre FLAME GLYPHOSATE 360[®] herbicide in 100 litres of spray solution). The 1% and 2% solutions should be applied to wet, but not to run off.

NOTE: THE CROP IN THE TREATED AREA WILL BE KILLED BY THE TREATMENT.

DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS BEFORE GRAZING IN, OR HARVESTING TREATED AREAS AS FORAGES.

FORAGE GRASSES AND LEGUMES

Use FLAME GLYPHOSATE 360[®] to control or suppress existing vegetation prior to emergence of legumes and grasses. If legumes and grasses are underseeded with a cover crop, FLAME GLYPHOSATE 360[®] must be applied prior to planting any cover crop.

PASTURE RENOVATION

FLAME GLYPHOSATE 360[®] may be used to control or suppress existing vegetation for zero tillage seeding of legume or grass pasture into established sod for renovation. Weed growth should be at least 20 cm high and most weed seeds should have germinated at the time of spraying.

FORAGE SEED PRODUCTION (FOR SPOT TREATMENT)

FLAME GLYPHOSATE 360[®] may be applied as a spot treatment for control of perennial weeds such as quackgrass and Canada thistle in seed fields. Apply to weeds at least 20-25 cm in height but before emergence of seed head.

The crop in the treated area will be killed. For this reason, take particular care to avoid drift outside the treated area.

PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, DANDELION, TOADFLAX and MILKWEED; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, dandelion, toadflax and common milkweed, and season-long control of perennial sow thistle, FLAME GLYPHOSATE 360[®] can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linolenic acid varieties), lentils, peas, dry beans and soybeans. DO NOT apply to crops grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tilling may interfere with harvest operations. **EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN THE ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.**

FLAME GLYPHOSATE 360[®] should be applied pre-harvest at 2.5 L/ha in 50 to 100 L/ha of clean water, by GROUND APPLICATION ONLY.

When to Apply: Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS chart for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7-14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Use Precautions: Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g. sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife,

should be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

DO NOT apply using aerial application equipment

Table 6: Guidelines for timing of preharvest applications

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL INDICATORS
WHEAT, BARLEY, OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including glyphosate tolerant varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linolenic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour, pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

Refer to the general guidelines for aerial application as well as specific instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION

FOR PRAIRIE PROVINCES ONLY (Including INTERIOR AND PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators, and aerial application services, approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patterning) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 - 600 microns) or very coarse (600 - 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a FLAME GLYPHOSATE 360[®] aerial application training course.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24-month period. All pilots who do not meet the minimum experience standard must work under the direct daily supervision of a qualified pilot.

DIRECTIONS FOR USE

FLAME GLYPHOSATE 360[®] may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. FLAME GLYPHOSATE 360[®] can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linoleic acid varieties), lentils, peas, dry beans, and soybeans. DO NOT apply to any crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

FLAME GLYPHOSATE 360[®] should be applied at 2.5 L/ha in 20 - 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS for visible indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 - 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Table 7: Guidelines for timing of preharvest applications (restricted use)

CROP(S)	PERCENT GRAIN MOISTURE	VISIBLE SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linoleic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
FORAGES	Not applicable	Normal stage for forage harvesting.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS (including glyphosate tolerant varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.

USE PRECAUTIONS:

AVOID DRIFT ON TO IMPORTANT WILDLIFE HABITATS. EXTREME CARE MUST BE TAKEN WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS.

Apply only in wind conditions in compliance with local and/or provincial regulations. Do not apply when other climatic conditions, including lesser wind velocities, will allow significant drift to occur.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that disperse spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. See # 1 of the NATURE OF RESTRICTION section for additional details.

Do not overspray or allow drift on to bodies of water, wetlands† and/or wetland vegetation (e.g., sloughs, swamps, bogs, marshes, potholes), shelterbelts, woodlots and other cover on the edge of fields.

IN ORDER TO REDUCE THE DRIFT HAZARD TO NON-TARGET PLANTS AND AQUATIC VEGETATION IN THE HABITATS LISTED ABOVE, DO NOT APPLY WITHIN 100 METRES OF THE EDGE OF ANY OF THESE HABITATS. Do not apply directly to roadside ditches, or apply under conditions that would favour drift into roadside ditches.

†A wetland is any land where the water table stands at or above the land surface for at least part of the year, and contains vegetation associated with wetlands such as bulrushes, sedges, cattails, etc.

Ensure uniform application - To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills.

PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.

The maintenance of an organic coating (paint) which meets aerospace specification MILC-38412 may prevent corrosion.

TREE, VINE, and BERRY CROPS

FLAME GLYPHOSATE 360[®] controls annual and perennial weeds in established vineyards or orchards, in blueberry, cranberry, and strawberry, or for site preparation prior to transplanting tree or vine crops. See chart on WEED CONTROL IN TREE, BERRY, and VINE CROPS for rate and time of application information.

This product does not provide residual or pre-emergent weed control. Repeat applications may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. For subsequent weed control, follow a program using residual herbicides or use repeated applications of FLAME GLYPHOSATE 360[®].

DO NOT APPLY MORE THAN 35 L OF FLAME GLYPHOSATE 360[®] HERBICIDE PER HECTARE PER YEAR. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF THE HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURE BROWN BARK CAN RESULT IN SERIOUS CROPDAMAGE.

Allow annual and perennial weeds that have been mowed, grazed, or cut, time to regrow to recommended growth stage for treatment.

Applications may be made with boom sprayer, shielded sprayers, hand held and high-volume orchard guns, or with wiper, wick, or roller equipment (orchards, vineyards, cranberry and strawberry only).

TREE PLANTING - Shelterbelts, Nursery Stock, Woody Ornamentals

FLAME GLYPHOSATE 360[®] may be applied to control annual and perennial weeds listed on this label. This may be used for site preparation prior to establishing plantations, or as a

post directed spray in established plantations of the following species:

Table 8: Trees where FLAME GLYPHOSATE 360[®] may be applied to control

Deciduous Trees		Coniferous Trees	
Name	Genus and Species	Name	Genus and Species
Ash	<i>Fraxinus spp.</i>	Fir	<i>Abies spp.</i>
Caragana	<i>Caragana spp.</i>	Juniper	<i>Juniperus spp.</i>
Cherry	<i>Prunus spp.</i>	Pine	<i>Pinus spp.</i>
Elm	<i>Ulmus spp.</i>	Spruce	<i>Picea spp.</i>
Lilac	<i>Syringa spp.</i>	Yew	<i>Taxus spp.</i>
Maple	<i>Acer spp.</i>		
Mountain ash	<i>Sorbus americana</i>		
Poplar	<i>Populus spp.</i>		
Russian olive	<i>Elaeagnus spp.</i>		
Willow	<i>Salix spp.</i>		

SPRAY MAY CONTACT MATURE BROWN BARK ONLY.

Avoid contact with non-target plants, foliage, or suckers of established plantations.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. **DO NOT** treat Christmas tree plantations in the year of anticipated harvest.

GLYPHOSATE TOLERANT CROPS

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA (I.E., VARIETIES WITH THE ROUNDUP[®] READY GENE).

WARNING: APPLY FLAME GLYPHOSATE 360[®] HERBICIDE ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to the **GENERAL PRODUCT INFORMATION, GENERAL APPLICATION NOTES, and APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS** sections.
- Apply FLAME GLYPHOSATE 360[®] herbicide in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visible yellowing may occur when FLAME GLYPHOSATE 360[®] herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT apply using aerial application equipment

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

Table 9: Weed control in canola with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.825 – 1.875	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, wild buckwheat*, shepherd's purse*, cow cockle*, night-flowering catchfly*, smartweed*, storksbill*, flixweed*, narrow-leaf hawk's beard*, roundleaf, mallow* * *</p> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sowthistle, dandelion</p> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sowthistle* * * *</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure. Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use the 1.25 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd's purse, cow cockle and night-flowering catchfly at the 1-3 leaf stage of the crop or for control of smartweed at the 4-6 leaf stage.</p> <p>** A single application at the 1.25 L/ha rate is required. *** Sequential applications at the 1.25 L/ha rate are required. **** Sequential applications at the 1.25 L/ha rate are required or a single application of 1.875 L/ha.</p> <ul style="list-style-type: none"> • For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. • Maximum 2.5 L/ha is allowed for the post emergence use.

TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in glyphosate tolerant canola (i.e., varieties with the Roundup Ready Gene), apply a tank mixture of 0.28 L/ha of Lontrel® 360 with 1.25 L/ha of FLAME GLYPHOSATE 360® Herbicide, in 100 litres of water per hectare. Apply when canola is in the 2-6 leaf stage. Refer to the Lontrel® 360 and to the FLAME GLYPHOSATE 360® Herbicide labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

Lontrel® is a registered trademark of Dow AgroSciences LLC.

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

WARNING: APPLY FLAME GLYPHOSATE 360® HERBICIDE ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIRCRAFT

Table 10: Weed control in soybean with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Use 100-200 L/ha water volumes)
2.5	First trifoliate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's thumb, Pennsylvania smartweed, eastern black flowering nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, milkweed*, yellow nutsedge*, fall panicum, wild proso millet	<p>A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment.</p> <p>This second application must be made no later than the flowering stage of the soybean.</p> <p>*Suppression only</p>
2.5 (x2)	First trifoliate leaf stage through flowering	Perennial sowthistle, Canada thistle, wire-stemmed muhly	<p>A second (sequential) application of 2.5 L/ha will improve control in heavy weed infestations. If sequential applications of 2.5 L/ha are used they should be at least 2 weeks apart for best results on perennial weeds. This second application must be made no later than the flowering stage of the soybean. Perennial sowthistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. Wire-stemmed muhly should be 10-20 cm in height and actively growing. Plants not fully emerged at the time of application will escape the treatment.</p>

Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

Tank Mixtures for Roundup Ready Soybeans

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit® herbicide may be tank mixed with FLAME GLYPHOSATE 360® herbicide at a rate of 2.5 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit® and apply up to and including the 3rd trifoliate leaf stage of the Roundup Ready soybeans in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit® as per instructions on the Pursuit® label and then add FLAME GLYPHOSATE 360® herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of FLAME GLYPHOSATE 360® herbicide and Pursuit® herbicide on glyphosate tolerant soybeans.

Only one application per season of FLAME GLYPHOSATE 360® herbicide at 2.5 litres per hectare tank mixed with Pursuit® herbicide at 0.16 to 0.21 litres per hectare is permitted.

Refer to the Pursuit® herbicide label for further safety precautions and handling instructions.

NONCROPLAND AND INDUSTRIAL USES

When applied as recommended under the conditions described, FLAME GLYPHOSATE 360® will control weeds in the non-cropland and industrial uses as listed in the WEED CONTROL IN NONCROPLAND, INDUSTRIAL USES chart.

TURFGRASS

FLAME GLYPHOSATE 360® may be applied to control existing vegetation prior to turf grass establishment or renovation. **DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.**

Where existing vegetation is growing under field or unmowed conditions, apply FLAME GLYPHOSATE 360® to actively growing weeds at the growth stages given in the charts on ANNUAL and PERENNIAL WEED CONTROL. Where the vegetation is growing under mowed turf grass management, apply FLAME GLYPHOSATE 360® after omitting at least one regular mowing to allow sufficient growth for good spray interception and translocation into underground plant parts.

Tillage or renovation techniques, such as vertical mowing, coring or slicing, should be delayed for 7 days after application to allow proper translocation into the underground plant parts. Delay establishment of the turfgrass to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient weed regrowth must be attained prior to application.

AVOID ALL CONTACT WITH DESIRABLE VEGETATION IN THE VICINITY OF THE RENOVATION OR ESTABLISHMENT AREA.

TREE INJECTION APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Trees may be controlled if FLAME GLYPHOSATE 360[®] is injected directly into the trunk using suitable equipment that penetrates into the living tissue.

FLAME GLYPHOSATE 360[®] is to be used at a rate of 1 mL (undiluted product) per 10 cm of trunk diameter at chest height. The injections should be spaced evenly around the tree and below any major branches. Application may be done during periods of active growth and full leaf expansion.

Control of trees greater than 20 cm may not be acceptable. Total control may not be evident for 1-2 years following treatment. This treatment will only provide suppression of big-leaf maple; late fall application will provide optimum suppression of big-leaf maple.

CUT STUMP APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Application must be made using low-pressure equipment (i.e. squirt bottle). Apply FLAME GLYPHOSATE 360[®] immediately to the surface of the freshly cut stump (i.e. within 5 minutes) at a rate of 0.5 mL FLAME GLYPHOSATE 360[®] for every 5 cm of trunk diameter at chest height. Treat only the cambial tissues (outer edge) of the cut surface. Do not treat the central area of the stump, or exposed roots or bark. This treatment may be made at any time of year, except during heavy sap flow or when freezing temperatures prevent application of FLAME GLYPHOSATE 360[®]. A water-soluble dye added to the solution may be used as a treatment indicator. Total control may not be apparent until 1-2 years after treatment.

WOODY BRUSH AND TREES (FOLIAR APPLICATIONS)

Spray coverage should be uniform and complete. Do not spray to the point of run off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on the target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

For woody brush and trees, apply 3 to 6 litres of FLAME GLYPHOSATE 360[®] per hectare. Use ground boom or boomless equipment, or apply as a 1 to 2% solution using hand held high volume equipment. Use the 6 L/ha rate for maple, alder and willow* species, as well as hard to control perennial weed species. (* Suppression only).

INDUSTRIAL SITES, RIGHTS-OF-WAY, RECREATIONAL AND PUBLIC AREAS

FLAME GLYPHOSATE 360[®] may be applied to control brush, trees, and annual and perennial weeds listed on this label **in industrial and rights-of-way areas, such as:** railways, forest roadsides, pipelines, highways, pumping stations, petroleum tank farms, telephone and power rights-of-ways, etc., **and in recreational and public areas, such as:** parks, golf courses, schoolyards, airports and other public areas.

NOTE: For all industrial sites, rights-of-ways, recreational and public areas, repeat treatment may be necessary to control regeneration or new growth.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

GROUND APPLICATION FOR ALL NON-CROPLAND USES:

For woody brush and trees, apply FLAME GLYPHOSATE 360® at 3 to 6 L/ha using ground boom, or boomless, or mist blower equipment. Or, apply as a 1 to 2% solution using hand-held high-volume equipment. Use the higher rate for maple, alder and willow* species, and for hard to control perennial weeds (*suppression only). Apply as directed to foliage of actively growing vegetation. Spray coverage should be uniform and complete. Do not spray to the point of runoff, or allow spray drift to contact desirable vegetation as severe injury or destruction may occur.

Mowed or tilled weeds should be allowed to reach optimum growth stage at time of application.

DO NOT APPLY UNDER WIND OR OTHER CONDITIONS THAT ALLOW DRIFT.

AERIAL APPLICATION: FOR INDUSTRIAL RIGHT-OF-WAY ONLY:

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Use Precautions

Directions for Use:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical-resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing

ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a spray volume of 30-100 L/ha

Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of FLAME GLYPHOSATE 360[®] accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion. For woody brush and trees, apply 3-6 L/ha. Use 6 L/ha for maple, alder and willow* species, and for hard to control perennial weed species. Use the recommended rates of the herbicide in 30 to 100 litres of water per hectare. As density of vegetation increases, spray volume should be increased within the allowed range to ensure complete coverage. (*suppression only)

PURPLE LOOSESTRIFE CONTROL

- **DO NOT TREAT PLANTS OVER OPEN WATER.** FLAME GLYPHOSATE 360[®] herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using handheld equipment, spray-to-wet.
- For wiper applications, see WIPER, WICK AND ROLLER EQUIPMENT section.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

Table 11: Weed control in non-cropland areas, and industrial uses

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Annual grasses and broad leaf weeds	2.25-3.5	50 - 100	1	Treat actively growing weeds.
Perennial Weeds	2.5	50 - 300	1	Treat actively growing weeds. Add 0.5% v/v of a recommended surfactant when using more than 150 L of water (see MINIMUM AND ZERO TILLAGE TANK MIXES) Use higher rate for heavy infestations and for long term control.
Quackgrass	4.75-7.0	50 - 300	2	
Canada thistle (bud stage)	4.75-7.0	100 - 300	2	
Purple loosestrife	6.0	300 – 600	1-2 (or 33% for wiper application)	
Other perennials	7.0-12	100 – 300	2	See PURPLE LOOSESTRIFE CONTROL section for instructions on application. Summer through fall is optimum.
Brush and Trees Birch, Cherry, Poplar, Western Snowberry, Willow	3.0-6.0	100-300	1-2	Summer through early fall.
Maple, Raspberry/ Salmonberry, Alder	6.0	100 – 300	2	Late summer through fall. Fall is optimum.
Turfgrass renovation: Annual & Perennial Weeds	2.5 – 12.0	100 – 300	1-2	Use higher end of rate range for perennials.

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Roadside vegetation (1-2 metres wide along shoulder)	1) 0.75 – 1.0 + 1.25 – 2.5L DyCleer 480® Agricultural Herbicide	25 – 150	–	Refer to tank mix section on product labels for specific weeds controlled. Refer to chart on ANNUAL WEED CONTROL for rates for specific weeds. For different 2,4-D formulations, adjust the rate accordingly. Do not apply to standing water.
	OR 2) 0.75 – 1.0 + 0.30L DyCleer 480® Agricultural Herbicide + 1.2L 2,4-D amine 500			
Residual Control Annual & Perennial weeds.	2.5 – 12 + 4.0 – 9.0 L Simadex® Flowable	200 – 400	–	This tank mix will provide season-long control of most germinating broadleaf weeds and grasses, and may also provide post- emergent control of certain annual weeds. Do not apply to coarse, sandy soil or gravelly soil. One application per year. Use the most restrictive label directions for each product in the mix.

Table 12: Weed control in tree, vine and berry crops

CROP	RATE (L/Ha)	PRE-HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Apples, apricot, cherry (sweet/sour), peaches, pears, plums	2.25-12 (directed spray)	30	3	Annual and perennial weeds	Apply as directed spray with no more than 275 kPa pressure.
Apples, grapes	Tank Mix 2.25-12 + simazine 2.0-4.5 kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long pre-emergent control. Do not apply to coarse, sandy or gravelly soil. Use the more restrictive label directions for each product in the mix. DO NOT apply to orchards established less than 1 year or vineyards established less than 3 years. Simazine 80W [®] rate is equivalent to 2.25-5.0 kg/ha Princep Nine-T [®] , or 4.0-9.0 L/ha Simadex [®] .
Grapes	2.25-12 (directed spray)	14	3	Annual and perennial weeds	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. Do not apply to vines that have been established less than 3 years.
Highbush (cultivated) blueberry	2.8-5.6 (directed spray)	30	1	Quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	1-2% solution (spot treatment)	Apply in non-bearing year only	1	Wood brush	Apply as directed spray in mid-summer of the vegetative (non-bearing) year. See AGRICULTURAL AND CROPLAND USES section for instructions on spot treatments.

CROP	RATE (L/Ha)	PRE- HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Filberts, hazelnut (established plantations)	2.25-3.5 (directed spray)	14	-	Annual weeds	Use as directed spray, with no more than 275 kPa pressure.
Walnut, chestnut, Japanese chestnut	2.25-12 (directed spray)	-	2	Annual and perennial weeds	Apply late spring and fall, post-harvest but prior to a killing frost. Apply in 200-300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 2% wiper solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Cranberry	20% Solution (1L FLAME GLYPHOSA TE 360® + 4 L water)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Strawberry	1-2% Solution (spot treatment) 33% solution (wiper applicator)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage. See AGRICULTURE AND CROPLAND USES section for instructions on spot treatments. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.

Table 13: Annual weed control

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or boomless	Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer canola, wild mustard, lady's thumb, stinkweed	Weeds up to 8 cm in height	0.75	50-100	For wild oats apply at 1 to 3 leaf stage. Add 350 mL of a surfactant registered for use such as Agral 90®, Ag-Surf®, and Companion™. For heavy wild oat infestations use 1.0 L/ha rate.
	All annual grasses listed above plus foxtail barley* (suppression only) All annual broadleaf weeds listed above plus flixweed** and kochia**.	Weeds 8 cm to 15 cm	1.0	50-100	Add 350 mL of Surfactant registered for use as listed above. *Apply before initiation of seed head or senescence of the lower leaves. **Suppression only. Refer to higher rates of this table.
	All annual grasses listed above plus downey brome, giant foxtail and Persian darnel. All annual broadleaf weeds listed above plus lamb's quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, narrow-leaf hawk's beard***	Weeds up to 15 cm in height	1.25-1.9	50-100	No additional surfactant required. *DO NOT use these rates on plants greater than 8 cm in height. **For 3 to 4 leaf stage use 1.9 L/ha rate. ***For weeds 8 cm to 15 cm in height use 1.9 L/ha.
	All annual grasses listed above plus crab grass and annual blue grass. All annual broadleaf weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch	Weeds up to 15 cm in height	2.25	50-100	
	All annual grasses and broadleaf weeds listed above.	Weeds over 15 cm in height	3.5	50-100	

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Wipers and wicks	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	This mixture is a 33% solution. Contact point for wiper or wick must be at least 5 cm above desirable vegetation. In severe weed infestations, reduce ground speed to ensure adequate control. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	0.5- 1.0	10	This mixture is a 5- 10% solution. Roller speed 50-150 rpm. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications.

Table 14: Perennial weed control

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or Boomless	Alfalfa	Early bud to full bloom stage. Fall Applications only.	3.7-5.0	50-300	Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see ALFALFA CONTROL WITH 2,4-D TANK MIX section under SPECIAL NOTES FOR PERENNIAL WEED CONTROL section.
Boom or Boomless	Canada thistle	Bud stage or beyond	4.75 - 7.0	100-300	Allow 5 days after application before tillage. Heavy frost prior to application may decrease control.
		Rosette stage (summer fallow)	2.5	50-100	Apply in clean water using flat fan nozzles. Ensure proper growth stage by performing last summer fallow tillage between July 5 and August 1st. Allow regrowth for a minimum of 5 weeks to reach rosette stage and a minimum of 15 cm in diameter. Allow 10 days after application before tillage. Treatment after a mild frost is possible if leaves are still green and actively growing but not after heavy damaging frost.
Boom or Boomless	Dandelion	Up to 15 cm. in height	2.5	50-100	Allow 3 or more days after treatment before tillage for all rates. Use the higher rates when infestations are heavy.
		Over 15 cm. in height	3.7	50-300	Refer to DANDELION notes in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. Allow 7 or more days after treatment before tillage.
		Rosette to full bloom (preharvest)	2.5	50-100	For more information, see PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, AND DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Foxtail barley	Seeding to heading	2.5-5	50-100	Allow a minimum of 1 day after treatment before tillage or seeding. Use higher rates for larger more established plants, heavy infestations, or if plants are stressed.
Boom or Boomless	Common Milkweed	Bud to full bloom	2.5	50-100	Reduced results may occur if sprayed after full bloom. Milkweed may not all be in the correct stage, therefore, repeat treatments

EQUIPMENT	WEEDS CONTROLL ED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
		(preharvest) Bud to full bloom	12	100-300	may be required. Repeat treatment may be required. Allow 7 days or more after application before tillage. See PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Toadflax	Vegetative stage (summer fallow) Bud to full bloom (pre-harvest)	2.5	50-100	Apply in clean water using flat fan nozzles. Allow 7 or more days after treatment before tillage in summer fallow. For more information, see Summer fallow Control under TOADFLAX in SPECIAL NOTES FOR PERENNIAL WEED CONTROL section, or PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Quack grass control, light to moderate infestations	3 to 4 green leaves or more	2.5	50-300	Apply in clean water using flat fan nozzles. Allow 3 or more days after treatment before tillage. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. For higher water volumes (ie.,150- 300L/ha) an approved surfactant must be added at 0.5 L per 100L of clean water. (0.5% v/v). Refer to list of surfactants in QUACKGRASS part of SPECIAL NOTED FOR PERENNIAL WEED CONTROL section. See also below.
	Quack grass (long term control, heavy infestations, high water volumes)	3-4 green leaves or more	2.5 - 7.0	50 - 300	Allow 3 or more days after treatment before tillage. Rates higher than 2.5L/ha will provide more consistent, longer term control especially with heavy infestations and/or higher (150-300 L) water volumes. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information.

EQUIPMENT	WEEDS CONTROLL ED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
	Other perennial weeds	Early heading or early bud stage (See VEGETATION CONTROLLED section)	7-12	100-300	Use higher rate for weeds beyond 8 cm in height or in heavy weed infestation. Allow 7 days after application before tillage. FLAME GLYPHOSATE 360® rate is equivalent to 70 to 120 mL/100 m2.
	Woody brush and trees	Actively growing from June through August	3-6	100-300	Use higher rate for maple, alder, Rubus species and willow*. Spray to wet.
High volume or knapsack	Woody brush and trees	Actively growing from June through August	1-2.0	100	This mixture is a 1 to 2% solution. Use higher rate for maple, alder, Rubus species and willow*. Spray to wet. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on high volume or knapsack applications.
Wipers and wicks	Perennial weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual and perennial weeds	Weeds to be at least 15 cm above desirable vegetation	0.5-1.0	10	This mixture is a 5-10% solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications. This treatment will only suppress perennial weeds contacted. Roller speed 50-150 rpm.
Tree Injection	Trees*	During periods of active growth and full leaf expansion except during periods of heavy sap flow.	0.5 mL/ 5 cm of trunk diameter at chest height	None	Suitable equipment must be used to penetrate to living tissue. Space applications evenly around the circumference of the trunk below major branches. Control of trees with trunk diameters greater than 20 cm may not be acceptable. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on TREE INJECTION APPLICATIONS. *Suppression only for willow.

SPECIAL NOTES FOR PERENNIAL WEED CONTROL

QUACKGRASS

For **season-long control on fall tilled ground**: Apply 2.5 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SURFACTANTS

The following is a list of approved surfactants for use with FLAME GLYPHOSATE 360[®] Herbicide for control of quackgrass:

Agral 90[®]
Companion[™]
Ag-Surf[®]

Always refer to surfactant label for specific instructions regarding use of that product.

CANADA THISTLE

Control of Canada thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

FLAME GLYPHOSATE 360[®] HERBICIDE PLUS BANVEL[®] OR ORACLE[®] TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summer fallow or in postharvest stubble, apply 1.7 litres per hectare FLAME GLYPHOSATE 360[®] Herbicide plus 1.25 litres per hectare Banvel[®] or Oracle[®] in 100-200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90[®], Ag-Surf[®]

or Companion™. For best results in summer fallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

TOADFLAX

Control of Toadflax in a Summer Fallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 10th and July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are a minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 2.5 to 5.0 litres per hectare FLAME GLYPHOSATE 360® Herbicide and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 2.5 to 5.0 litres per hectare FLAME GLYPHOSATE 360® Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14-day interval between application and planting is required.

Use the higher FLAME GLYPHOSATE 360® Herbicide rates when perennial grasses are prevalent.

ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to **PERENNIAL WEED CONTROL WITH FLAME GLYPHOSATE 360 HERBICIDE®** table.

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow up tillage after application should be delayed 5 to 7 days for best results. See **ANNUAL AND PERENNIAL WEED CONTROL** tables for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required to control weeds regenerating from seeds or other underground parts.

Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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Companion™ and Lontrel® are the registered trademarks of Dow AgroSciences LLC
Aatrex Nine-O®, Agral®, DyCleer®, Princep Nine-T® are the registered trademarks of Syngenta Group Company

Ag-Surf® is a registered trademark of IPCO

Banvel®, Marksman and Pursuit® are the registered trademarks of BASF

Pardner® and Simadex® are the registered trademarks of Aventis

Oracle® is a registered trademark of Gharda

FBN Clethodim Adjuvant

EMULSIFABLE CONCENTRATE

FOR USE WITH THE POST-EMERGENCE HERBICIDE FBN CLETHODIM 240

AGRICULTURAL

ACTIVE INGREDIENT: Phosphate Ester Surfactant30%

REGISTRATION NO. 33357

PEST CONTROL PRODUCTS ACT

WARNING: CAUSES SEVERE EYE AND SKIN IRRITATION

KEEP OUT OF REACH OF CHILDREN

READ THE LABEL BEFORE USING

NET CONTENTS: 9 LITRES

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

In case of spills, poisoning or fire, telephone emergency response number
CANUTEC
1-613-996-6666 or *666 on a cellular phone. (24 hours a day).

DIRECTIONS FOR USE:

FBN Clethodim Adjuvant is only to be used in a tank-mix with the post-emergence herbicide **FBN CLETHODIM 240** for control of grass weeds, volunteer cereals and quackgrass.

FBN Clethodim Adjuvant is to be used in a tank-mix with **FBN CLETHODIM 240** in seedling alfalfa, highbush blueberry, canola, coriander, dill, caraway, fenugreek, cranberry, flax (including low linolenic acid varieties), oriental (brown) mustard (condiment and oilseed types), yellow mustard, dry bulb onions and garlic, potatoes, prairie carnations, safflower, soybeans, spinach, sunflowers, basil, red garden (table) beet, parsnip, carrot, radish, cherry (sweet and tart), certain herbs and spices, hops, *Brassica carinata*, and dried shelled beans and peas [including Bean (*Lupinus* spp.) (includes grain lupin, sweet lupin, white lupin and white sweet lupin); Bean (*Phaseolus* spp.) (includes field bean, kidney bean, lima bean (dry), navy bean, pinto bean, tepary bean); Bean (*Vigna* spp.) (includes adzuki bean, blackeyed pea, catjang, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean); Broad bean (fava bean) (*Vicia faba*); Chickpea (garbanzo bean) (*Cicer arietinum*); Guar (*Cyamopsis tetragonoloba*); Lablab bean (hyacinth bean) (*Lablab purpureus*); Lentil (*Lens esculenta*); Pea (*Pisum* spp.) (includes field pea); Pigeon pea (*Cajanus cajan*)].

FBN Clethodim Adjuvant is to be used at 0.5% v/v-1.0% v/v with the recommended rate of **FBN CLETHODIM 240** as specified on the product label.

PRECAUTIONS:

WARNING: Causes severe eye and skin irritation.

KEEP OUT OF REACH OF CHILDREN.

Avoid contact with skin, eyes and clothing. Wear long sleeved shirt, long pants during all activities and goggles, face shield and chemical resistant gloves during mixing, loading, clean up and repair activities. Wash concentrate from skin or eyes immediately. Avoid breathing vapours or spray mist. Avoid working in spray mist. After use, wash hands and other exposed skin thoroughly. Store the container tightly closed away from seeds, fertilizer, plants and foodstuffs. Avoid contamination of ponds, streams, rivers and other water sources.

FIRST AID:

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

STORAGE AND DISPOSAL

STORAGE: May be stored at any temperature.

DISPOSAL:

Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Disposal of Unused, Unwanted Product: For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offense under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.



LIXAR PRO FUNGICIDE

Safety Data Sheet

according to Regulation (EU) 2015/830
Issue date: 02/11/2021

Version: 0.0/CA (eng)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : LIXAR PRO FUNGICIDE
Name : Tebuconazole 0.3% + metalaxyl 0.62% + prothioconazole 1.54% w/v SC
Registration # : 34270

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Fungicide

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Sharda Cropchem Ltd.
2nd Floor, Prime Business Park, Dashrathlal Joshi Road, Vile Parle (West)
400056 Mumbai - India
T + 91 22 6261 5615 - F + 91 22 6678 2828
regn@shardaintl.com

1.4. Emergency telephone number

Emergency number : 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (inhal.), Category 4	H332
Serious eye damage/eye irritation, Category 1	H318
Reproductive toxicity, Category 2	H361fd

Full text of H-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS05

GHS07

GHS08

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H318 - Causes serious eye damage.

H332 - Harmful if inhaled.

H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child.

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Precautionary statements (CLP)	: P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P261 - Avoid breathing dust/fume/gas/mist/vapours/spray. P271 - Use only outdoors or in a well-ventilated area. P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection. P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 - IF exposed or concerned: Get medical advice/attention. P310 - Immediately call a POISON CENTER or doctor. P312 - Call a POISON CENTRE or doctor if you feel unwell. P405 - Store locked up. P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
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2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limits
Prothioconazole	(CAS-No.) 178928-70-6	1.51	Aquatic Chronic 2, H411	
metalaxyl (ISO); methyl-N-(2,6-dimethylphenyl)-N-(methoxyacetyl)-DL-alaninate	(CAS-No.) 57837-19-1 (EC-No.) 260-979-7 (EC Index-No.) 607-425-00-6	0.612	Acute Tox. 4 (Oral), H302 Skin Sens. 1, H317 Aquatic Chronic 3, H412	
1,2-benzisothiazol-3(2H)-one; 1,2-benzisothiazolin-3-one	(CAS-No.) 2634-33-5 (EC-No.) 220-120-9 (EC Index-No.) 613-088-00-6	0-1	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400	(0.05 ≤C < 100) Skin Sens. 1, H317
tebuconazole (ISO), 1-(4-chlorophenyl)-4,4-dimethyl-3-(1,2,4-triazol-1-ylmethyl)pentan-3-ol	(CAS-No.) 107534-96-3 (EC-No.) 403-640-2 (EC Index-No.) 603-197-00-7	0.3	Repr. 2, H361d Acute Tox. 4 (Oral), H302 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 (M=10)	

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Move the affected person away from the contaminated area and into the fresh air. If not breathing, give artificial respiration. Call a doctor.
First-aid measures after skin contact	: Remove contaminated clothes. After contact with skin, wash immediately and thoroughly with water and soap.
First-aid measures after eye contact	: Wash with plenty of water (during 20 minutes minimum) with eyes wide open after taking off soft contact lenses and immediately take medical advice.
First-aid measures after ingestion	: Rinse mouth. Immediately call a POISON CENTER/doctor.

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4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Fire hazard : In case of fire and/or explosion do not breathe fumes.
Reactivity in case of fire : Product is not explosive.
Hazardous decomposition products in case of fire : Carbon monoxide. Nitrogen oxides. Carbon dioxide. Toxic fumes may be released.

5.3. Advice for firefighters

Precautionary measures fire : Keep container tightly closed and away from heat, sparks and flame. Keep away from combustible materials.
Firefighting instructions : Appropriate self-contained breathing apparatus may be required. Get the package away from the fire if this can be done without risk. Prevent fire fighting water from entering the environment.
Protection during firefighting : Wear fire/flame resistant/retardant clothing. Do not enter fire area without proper protective equipment, including respiratory protection.
Other information : Do not allow material to contaminate surface water system.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear suitable protective clothing, gloves and eye or face protection. Chemical resistant gloves (according to European standard NF EN 374 or equivalent). EN 166. Wear eye protection. Personal protective equipment. EN ISO 20345.
Emergency procedures : Evacuate personnel to a safe area.

6.1.2. For emergency responders

Protective equipment : Wear suitable hand, body and head protection.

6.2. Environmental precautions

Danger of pollution of drinking water when product enters the soil. Do not allow run-off from fire fighting to enter drains or water courses. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Label the container and provide warning statements to prevent any contact.
Methods for cleaning up : Soak up with inert absorbent material (for example sand, sawdust, a universal binder, silica gel). Clean spills promptly. Wash contaminated area with large amounts of water.

6.4. Reference to other sections

No additional information available

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Do not allow run-off from fire fighting to enter drains or water courses. Do not contaminate water with the product or its container (Do not clean application equipment near surface water/Avoid contamination via drains from farmyards and roads).
- Precautions for safe handling : Avoid contact with skin and eyes. Do not eat, drink or smoke in areas where product is used. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Remove contaminated clothing and shoes. Wash clothing and equipment after handling.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Ensure adequate ventilation, especially in confined areas. Store locked up.
- Storage conditions : Keep only in original container. Store in a dry place. Store in a closed container. Store in a well-ventilated place. Protect from sunlight.
- Storage temperature : 0 – 30 °C
- Packaging materials : Keep only in the original container in a cool, well-ventilated place away from combustible materials.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

No additional information available

8.2.2. Personal protection equipment

8.2.2.1. Eye and face protection

Eye protection:

EN 166. Eye protection, including both chemical splash goggles and face shield, must be worn when possibility exists for eye contact due to spraying liquid or airborne particles

8.2.2.2. Skin protection

Skin and body protection:

Long sleeved protective clothing

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Hand protection:

Chemical resistant gloves (according to European standard NF EN 374 or equivalent)

8.2.2.3. Respiratory protection

Respiratory protection:

Extra personal protection: P2 filter respirator for harmful particles. Extra personal protection: P3 filter respirator for toxic particles

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: No data available
Odour	: No data available
Odour threshold	: No data available
pH	: 6-7
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.0286 g/ml
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions of use.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Stable under normal conditions of use.

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10.4. Conditions to avoid

Heat. High temperature. Open flame. Direct sunlight.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Harmful if inhaled.

Prothioconazole (178928-70-6)	
LD50 oral rat	> 6200 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 Inhalation - Rat	> 4990 mg/m ³

tebuconazole (ISO), 1-(4-chlorophenyl)-4,4-dimethyl-3-(1,2,4-triazol-1-ylmethyl)pentan-3-ol (107534-96-3)	
LD50 oral rat	1700 mg/kg bodyweight
LD50 dermal rat	> 2000 mg/kg bodyweight
LC50 Inhalation - Rat	> 5.093 mg/l/4h

metalaxyl (ISO); methyl-N-(2,6-dimethylphenyl)-N-(methoxyacetyl)-DL-alaninate (57837-19-1)	
LD50 oral rat	669 – 1373 mg/kg bodyweight
LD50 dermal rat	> 5000 mg/kg bodyweight
LC50 Inhalation - Rat	> 3.6 mg/l

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitisation : Not classified.
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Suspected of damaging fertility. Suspected of damaging the unborn child.
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Not classified.

Prothioconazole (178928-70-6)	
LC50 - Fish [1]	1.83 mg/l (<i>Oncorhynchus mykiss</i>)
EC50 - Crustacea [1]	1.3 mg/l (<i>Daphnia magna</i> ,)

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EC50 72h - Algae [1]	2.18 mg/l (<i>Pseudokirchneriella subcapitata</i>)
tebuconazole (ISO), 1-(4-chlorophenyl)-4,4-dimethyl-3-(1,2,4-triazol-1-ylmethyl)pentan-3-ol (107534-96-3)	
LC50 - Fish [1]	4.4 mg/l (96 h, <i>Oncorhynchus mykiss</i>)
EC50 - Crustacea [1]	2.79 mg/l (48 h, <i>Daphnia magna</i>)
EC50 72h - Algae [1]	3.8 mg/l (72 h, <i>Pseudokirchneriella subcapitata</i>)
ErC50 other aquatic plants	0.144 mg/l (14 d, <i>Lemna gibba</i>)

metalaxyl (ISO); methyl-N-(2,6-dimethylphenyl)-N-(methoxyacetyl)-DL-alaninate (57837-19-1)	
LC50 - Fish [1]	0.96 mg/l (96h)
ErC50 algae	0.42 mg/l (72h)

12.2. Persistence and degradability

tebuconazole (ISO), 1-(4-chlorophenyl)-4,4-dimethyl-3-(1,2,4-triazol-1-ylmethyl)pentan-3-ol (107534-96-3)	
Persistence and degradability	Not readily biodegradable.

12.3. Bioaccumulative potential

Prothioconazole (178928-70-6)	
Partition coefficient n-octanol/water (Log Pow)	3.82 (pH 7, 20 °C)

tebuconazole (ISO), 1-(4-chlorophenyl)-4,4-dimethyl-3-(1,2,4-triazol-1-ylmethyl)pentan-3-ol (107534-96-3)	
Partition coefficient n-octanol/water (Log Pow)	3.7 (pH 7, 20 °C)

12.4. Mobility in soil

Prothioconazole (178928-70-6)	
Surface tension	67 mN/m (20 °C)

tebuconazole (ISO), 1-(4-chlorophenyl)-4,4-dimethyl-3-(1,2,4-triazol-1-ylmethyl)pentan-3-ol (107534-96-3)	
Surface tension	64.26 mN/m (20 °C, 28.8 mg/L)

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Avoid release to the environment. Disposal must be done according to official regulations. Do not dispose of the packaging without first carrying out the necessary cleaning. Refer to manufacturer/supplier for information on recovery/recycling.






SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

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ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 3082	UN 3082	UN 3082	UN 3082	UN 3082
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Transport regulations (TDG)	: Not regulated by TDG when transported solely on land by road or railway vehicle.
Transport regulations	: Not Regulated
Classification code (ADR)	: M6
Special provisions (ADR)	: 274, 335, 375, 601
Limited quantities (ADR)	: 5I
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P001, IBC03, LP01, R001
Special packing provisions (ADR)	: PP1
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T4
Portable tank and bulk container special provisions (ADR)	: TP1, TP29
Tank code (ADR)	: LGBV
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV13
Hazard identification number (Kemler No.)	: 90

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Orange plates : 

Tunnel restriction code (ADR) : -

Transport by sea

Special provisions (IMDG) : 274, 335, 969
Limited quantities (IMDG) : 5 L
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : LP01, P001
Special packing provisions (IMDG) : PP1
IBC packing instructions (IMDG) : IBC03
Tank instructions (IMDG) : T4
Tank special provisions (IMDG) : TP1, TP29
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-F
Stowage category (IMDG) : A

Air transport

PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y964
PCA limited quantity max net quantity (IATA) : 30kgG
PCA packing instructions (IATA) : 964
PCA max net quantity (IATA) : 450L
CAO packing instructions (IATA) : 964
CAO max net quantity (IATA) : 450L
Special provisions (IATA) : A97, A158, A197, A215
ERG code (IATA) : 9L

Inland waterway transport

Classification code (ADN) : M6
Special provisions (ADN) : 274, 335, 375, 601
Limited quantities (ADN) : 5 L
Excepted quantities (ADN) : E1
Equipment required (ADN) : PP
Number of blue cones/lights (ADN) : 0

Rail transport

Classification code (RID) : M6
Special provisions (RID) : 274, 335, 375, 601
Limited quantities (RID) : 5L
Excepted quantities (RID) : E1
Packing instructions (RID) : P001, IBC03, LP01, R001
Special packing provisions (RID) : PP1
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T4
Portable tank and bulk container special provisions (RID) : TP1, TP29
Tank codes for RID tanks (RID) : LGBV
Transport category (RID) : 3
Special provisions for carriage – Packages (RID) : W12
Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW31
Colis express (express parcels) (RID) : CE8
Hazard identification number (RID) : 90

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

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according to Regulation (EU) 2015/830

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Other information, restriction and prohibition : according to Regulation (EU) 2015/830.
regulations

15.1.2. National regulations

Refer to protective measures listed in Sections 7 and 8

15.2. Chemical safety assessment

Refer to protective measures listed in Sections 7 and 8

SECTION 16: Other information

Full text of H- and EUH-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H361d	Suspected of damaging the unborn child.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Other data

Date of issue: 02/11/2021
Version: 0.0/CA (eng)
Replaces: -

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according to Regulation (EU) 2015/830

Indication of changes: -

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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Herbicide Technical - 33325 - FBN Diquat Technical - Cover _____	487
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Label Search Results

Product Information

Registration Number :	33357
Product Name :	FBN CLETHODIM ADJUVANT
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2019-02-20
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2024-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	POLYOXYALKYLATED ALKYL PHOSPHATE ESTER POLYOXYALKYLATED ALKYL PHOSPHATE ESTER CASN = (GUAR = 30 % NOMINAL)

Date Modified: 2020-08-31

FBN Clethodim Adjuvant

EMULSIFABLE CONCENTRATE

FOR USE WITH THE POST-EMERGENCE HERBICIDE FBN CLETHODIM 240

AGRICULTURAL

ACTIVE INGREDIENT: Phosphate Ester Surfactant30%

REGISTRATION NO. 33357

PEST CONTROL PRODUCTS ACT

WARNING: CAUSES SEVERE EYE AND SKIN IRRITATION

KEEP OUT OF REACH OF CHILDREN

READ THE LABEL BEFORE USING

NET CONTENTS: 9 LITRES

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

In case of spills, poisoning or fire, telephone emergency response number
CANUTEC
1-613-996-6666 or *666 on a cellular phone. (24 hours a day).

DIRECTIONS FOR USE:

FBN Clethodim Adjuvant is only to be used in a tank-mix with the post-emergence herbicide **FBN CLETHODIM 240** for control of grass weeds, volunteer cereals and quackgrass.

FBN Clethodim Adjuvant is to be used in a tank-mix with **FBN CLETHODIM 240** in seedling alfalfa, highbush blueberry, canola, coriander, dill, caraway, fenugreek, cranberry, flax (including low linolenic acid varieties), oriental (brown) mustard (condiment and oilseed types), yellow mustard, dry bulb onions and garlic, potatoes, prairie carnations, safflower, soybeans, spinach, sunflowers, basil, red garden (table) beet, parsnip, carrot, radish, cherry (sweet and tart), certain herbs and spices, hops, *Brassica carinata*, and dried shelled beans and peas [including Bean (*Lupinus* spp.) (includes grain lupin, sweet lupin, white lupin and white sweet lupin); Bean (*Phaseolus* spp.) (includes field bean, kidney bean, lima bean (dry), navy bean, pinto bean, tepary bean); Bean (*Vigna* spp.) (includes adzuki bean, blackeyed pea, catjang, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean); Broad bean (fava bean) (*Vicia faba*); Chickpea (garbanzo bean) (*Cicer arietinum*); Guar (*Cyamopsis tetragonoloba*); Lablab bean (hyacinth bean) (*Lablab purpureus*); Lentil (*Lens esculenta*); Pea (*Pisum* spp.) (includes field pea); Pigeon pea (*Cajanus cajan*)].

FBN Clethodim Adjuvant is to be used at 0.5% v/v-1.0% v/v with the recommended rate of **FBN CLETHODIM 240** as specified on the product label.

PRECAUTIONS:

WARNING: Causes severe eye and skin irritation.

KEEP OUT OF REACH OF CHILDREN.

Avoid contact with skin, eyes and clothing. Wear long sleeved shirt, long pants during all activities and goggles, face shield and chemical resistant gloves during mixing, loading, clean up and repair activities. Wash concentrate from skin or eyes immediately. Avoid breathing vapours or spray mist. Avoid working in spray mist. After use, wash hands and other exposed skin thoroughly. Store the container tightly closed away from seeds, fertilizer, plants and foodstuffs. Avoid contamination of ponds, streams, rivers and other water sources.

FIRST AID:

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

STORAGE AND DISPOSAL

STORAGE: May be stored at any temperature.

DISPOSAL:

Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Disposal of Unused, Unwanted Product: For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offense under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33779
Product Name :	FBN TEBUCONAZOLE 250 FUNGICIDE
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2020-06-04
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2025-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	TEBUCONAZOLE PIN: rac-(3R)-1-(4-chlorophenyl)-4,4-dimethyl-3-(1H-1,2,4-triazol-1-ylmethyl)pentan-3-ol or IUPAC: (RS)-1-p-chlorophenyl-4,4-dimethyl-3-(1H-1,2,4-triazol-1-ylmethyl)pentan-3-ol CASN = 107534-96-3 (GUAR =)

Date Modified: 2020-08-31

****Container Label****

Group	3	Fungicide
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FBN Tebuconazole 250

Fungicide

Emulsion in Water

FOR CONTROL OR SUPPRESSION OF LISTED DISEASES IN WHEAT, BARLEY, OATS AND SOYBEAN

COMMERCIAL

ACTIVE INGREDIENT: Tebuconazole 250 g/L

REGISTRATION NUMBER 33779 PEST CONTROL PRODUCTS ACT

READ THE LABEL AND PAMPHLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN



DANGER POISON
CORROSIVE TO EYES

NET CONTENTS: 4.04 L to 405 L (bulk)

Product Information: 1-844-200-FARM (3276)

Farmer's Business Network Canada, Inc
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

In case of spills, poisoning or fire, telephone emergency response number 1-613-996-6666 (24 hours a day).

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. Fatal or poisonous if swallowed. Harmful if inhaled. Corrosive to the eye. DO NOT get in eyes. Avoid breathing vapor or spray mist..

Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and boots during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab and/or cockpit. In addition, wear protective eyewear (goggles or face shield) during mixing, loading, application, clean-up and repair.

Follow manufacturer's instructions for cleaning/maintaining the Personal Protective Clothing (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations:

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Apply only to agricultural crops when the potential for drift to areas of human habitation and human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

FIRST AID

In case of poisoning, call physician or Poison Control Centre immediately. Have patient lie down and keep quiet.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

The compound does not cause any definite symptoms that would be diagnostic.

To Physician: No specific antidote. Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS

Tebuconazole is persistent and will carryover. It is recommended that any products containing tebuconazole not be used in areas treated with this product during the previous season.

Toxic to birds, small wild animals, aquatic organisms, and non-target plants. Observe buffer zones specified under DIRECTIONS FOR USE and APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. Do not apply to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Runoff is hazardous to aquatic organisms in neighboring areas. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. To reduce the run off refer to the recommendations under "APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS".

STORAGE

Do not contaminate water, food or feed by storage or disposal.

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

LEAK OR SPILL PROCEDURE: Handle and open container in a manner as to prevent spillage. If container is leaking invert to prevent leakage. If the container is leaking or material is spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. In spill or leak incidents, keep unauthorized people away. For decontamination procedures or any other assistance that may be necessary, you may contact Farmer's Business Network Canada, Inc. at the 24 Hour Emergency Phone Number: 1-844-200-FARM (3276), or contact CANUTEC at 1-613-996-6666.

DISPOSAL

Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Refillable Container: For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

Non-Returnable Container:

1. Triple or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

****Pamphlet Label****

Group	3	Fungicide
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FBN Tebuconazole 250 Fungicide Emulsion in Water

**FOR CONTROL OR SUPPRESSION OF LISTED DISEASES IN WHEAT, BARLEY, OATS
AND SOYBEAN**

COMMERCIAL

ACTIVE INGREDIENT: Tebuconazole 250 g/L

REGISTRATION NUMBER 33779 PEST CONTROL PRODUCTS ACT

READ THE LABEL AND PAMPHLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN



**DANGER POISON
CORROSIVE TO EYES**

NET CONTENTS: 4.04 L to 405 L (bulk)

Product Information: 1-844-200-FARM (3276)

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

In case of spills, poisoning or fire, telephone emergency response number 1-613-996-6666 (24 hours a day).

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. Fatal or poisonous if swallowed. Harmful if inhaled. Corrosive to the eye. DO NOT get in eyes. Avoid breathing vapor or spray mist..

Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and boots during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab and/or cockpit. In addition, wear protective eyewear (goggles or face shield) during mixing, loading, application, clean-up and repair.

Follow manufacturer's instructions for cleaning/maintaining the Personal Protective Clothing (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations:

User should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Apply only to agricultural crops when the potential for drift to areas of human habitation and human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or www.croplife.ca.

FIRST AID

In case of poisoning, call physician or Poison Control Centre immediately. Have patient lie down and keep quiet.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking
Page 6

medical attention.

TOXICOLOGICAL INFORMATION

The compound does not cause any definite symptoms that would be diagnostic.

To Physician: No specific antidote. Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS

Tebuconazole is persistent and will carryover. It is recommended that any products containing tebuconazole not be used in areas treated with this product during the previous season.

Toxic to birds, small wild animals, aquatic organisms, and non-target plants. Observe buffer zones specified under DIRECTIONS FOR USE and APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. Do not apply to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Runoff is hazardous to aquatic organisms in neighboring areas. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. To reduce the run off refer to the recommendations under "APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS".

STORAGE

Do not contaminate water, food or feed by storage or disposal.

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

LEAK OR SPILL PROCEDURE: Handle and open container in a manner as to prevent spillage. If container is leaking invert to prevent leakage. If the container is leaking or material is spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. In spill or leak incidents, keep unauthorized people away. For decontamination procedures or any other assistance that may be necessary, you may contact Farmer's Business Network Canada, Inc. at the 24 Hour Emergency Phone Number: 1-844-200-FARM (3276), or contact CANUTEC at 1-613-996-6666.

DISPOSAL

Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container: Do not reuse this container for any purpose. For disposal, this empty container

may be returned to the point of purchase (distributor/dealer).

Refillable Container: For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

Non-Returnable Container:

1. Triple or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

DIRECTIONS FOR USE:

IMPORTANT: Read this entire label before using FBN Tebuconazole 250. **Ensure no bystanders are present during the application operation.** Only protected handlers may be in the area during application. Use mechanical flaggers only. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Spray Volume: **F B N** Tebuconazole 250 should be applied in a minimum of 100 litres of spray solution per hectare by ground sprayer or 47 litres of spray solution per hectare by aircraft spray equipment. Check equipment calibration frequently.

Chemigation: Do not apply this product through any type of irrigation system.

Mixing: Add the required amount of FBN Tebuconazole 250 into the spray tank while filling with water to the desired level. Operate the agitator while mixing. If other materials are added to the spray tank, the FBN Tebuconazole 250 should be thoroughly dispersed prior to the addition of other materials.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Buffer zones:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands). In addition to the buffer zones specified in the table below, users must also observe buffer zones specified under APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS.

Method of Application	Crop		Buffer Zones (metres) Required for the Protection of:
			Terrestrial Habitats
Field sprayer	Wheat (spring, winter and durum), Barley, Oats and Soybean		1
Aerial	Wheat (spring, winter and durum), Barley, Oats and Soybean	Fixed and rotary wing	15

The spray drift buffer zones required for the protection of terrestrial habitats for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

Cereals (Wheat, Barley and Oats):

CROP	DISEASES	DOSAGE OF FBN Tebuconazole 250 Fungicide	REMARKS
<p>Wheat (spring, winter and durum)</p>	<p>For suppression of:</p> <p>Fusarium head blight (scab) (<i>Gibberella zeae</i> / <i>Fusarium graminearum</i>)</p> <p>For control of:</p> <p>Septoria glume blotch (<i>Stagonospora nodorum</i>)</p>	500 mL/ha	<ul style="list-style-type: none"> • <i>Fusarium</i> head blight (scab) risk is greater when the weather is warm and wet at the flowering to soft dough stages. • The application of FBN Tebuconazole 250 for protection against <i>Fusarium</i> head blight (scab) should be considered when these weather conditions are forecasted for this stage of wheat development. • Timing of application is critical: For suppression of Fusarium Head Blight and control of Septoria glume blotch, apply FBN Tebuconazole 250 within the time period from when at least 75% of the wheat heads on the main stem are fully emerged to when 50% of the heads on the main stem are in flower. • Spray coverage is essential: Spray equipment must be set up to ensure thorough coverage of all wheat heads. • FBN Tebuconazole 250 may be applied by ground or air equipment • GROUND APPLICATION: Apply specified dosage in a minimum of 100 L of water per hectare. • AERIAL APPLICATION: Apply specified dosage in a minimum of 47 L of water per hectare.
	<p>For control of:</p> <p>Rusts (Leaf, Stem and Stripe) (<i>Puccinia triticina</i>, <i>P. graminis</i>, <i>P. striiformis</i>)</p> <p>Septoria Leaf Blotch (<i>Septoria tritici</i>)</p> <p>Tan Spot (<i>Pyrenophora tritici-repentis</i>)</p>	375-500 mL/ha	<ul style="list-style-type: none"> • Apply FBN Tebuconazole 250 to leaf foliage at the first sign or very early stage of disease, especially if weather conditions are conducive to disease development, up to the end of the flowering stage. • Where a rate range is specified, use of the higher rate should be considered when weather conditions are conducive to heavy disease development. • FBN Tebuconazole 250 may be applied by ground or air equipment • GROUND APPLICATION: Apply specified dosage in a minimum of 100 L of water per hectare.
	<p>For control of:</p> <p>Powdery Mildew (<i>Erysiphe graminis</i>)</p>	500 mL/ha	<ul style="list-style-type: none"> • AERIAL APPLICATION: Apply specified dosage in a minimum of 47 L of water per hectare.

Barley	For control of: Net Blotch (<i>Pyrenophora teres</i>) Spot Blotch (<i>Cochliobolus sativus</i>) Scald (<i>Rhynchosporium secalis</i>) Rusts (Leaf, Stem and Stripe) (<i>Puccinia hordei</i> , <i>P. graminis</i> , <i>P. striiformis</i>) Speckled Leaf Blotch (<i>Septoria passerinii</i>) Powdery Mildew (<i>Erysiphe graminis</i>)	375-500 mL/ha	<ul style="list-style-type: none"> • Apply FBN Tebuconazole 250 at the very early stages of disease development. • Where a rate range is specified, use of the higher rate should be considered when weather conditions are conducive to heavy disease development. • FBN Tebuconazole 250 may be applied by ground or air equipment • GROUND APPLICATION: Apply specified dosage in a minimum of 100 L of water per hectare. • AERIAL APPLICATION: Apply specified dosage in a minimum of 47 L of water per hectare.
Oats	For control of: Crown Rust (<i>Puccinia coronata</i>) Stem Rust (<i>Puccinia graminis</i>)	375 mL/ha	<ul style="list-style-type: none"> • Apply FBN Tebuconazole 250 at the very early stages of disease development. • Where a rate range is specified, use of the higher rate should be considered when weather conditions are conducive to heavy disease development. • FBN Tebuconazole 250 may be applied by ground or air equipment. • GROUND APPLICATION: Apply specified dosage in a minimum of 100 L of water per hectare. • AERIAL APPLICATION: Apply specified dosage in a minimum of 47 L of water per hectare.
	Speckled leaf blotch and black stem (<i>Phaeosphaeria [avenaria]</i>)	375-500 mL/ha	

Restrictions: A maximum of one application of FBN Tebuconazole 250 may be applied per crop season to wheat, barley and oats. Applications may not be made within 36 days of harvest. Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment with FBN Tebuconazole 250. Straw cut after harvest may be fed or used for bedding.

Resistance Management Advisory for Cereal Crops:

Repeated application of standalone DMI Fungicides should not be used on the same crop in one season against risky pathogens such as cereal powdery mildew in areas of high disease pressure for that particular pathogen. Mixture products, tank-mixtures or alternation with fungicides having a different mode of action have been shown to protect against the development of resistant forms of disease.

Soybean:

CROP	DISEASES	DOSAGE OF FBN Tebuconazole 250 Fungicide	REMARKS

Soybean	Asian Soybean Rust <i>(Phakopsora pachyrhizi)</i> Frogeye Leaf Spot <i>(Cercospora sojina)</i> Suppression of Powdery Mildew <i>(Microsphaera diffusa)</i>	375-500 mL/ha	<ul style="list-style-type: none"> • Apply FBN Tebuconazole 250 when first symptoms of disease can be found or when the risk of infection is imminent. • Use the higher rate when disease pressure is severe. • FBN Tebuconazole 250 may be applied by ground or air equipment • GROUND APPLICATION: Apply specified dosage in a minimum of 100 L of water per hectare. • AERIAL APPLICATION: Apply specified dosage in a minimum of 47 L of water per hectare.
Restrictions: A maximum of one application of FBN Tebuconazole 250 may be applied per crop season. Applications may not be made within 20 days of harvest.			

RESISTANCE MANAGEMENT:

For resistance management, FBN Tebuconazole 250 contains a Group 3 fungicide. Any fungal population may contain individuals naturally resistant to FBN Tebuconazole 250 and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay fungicide resistance:

Where possible, rotate the use of FBN Tebuconazole 250 or other Group 3 fungicides with different groups of fungicides that control the same pathogens.

Do not apply more than the indicated maximum number of applications specified for each crop in the DIRECTIONS FOR USE.

Fungicide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.

Where possible, make use of predictive disease models to effectively time fungicide applications.

Monitor treated fungal populations for sign of resistance development. Notify Farmer’s Business Network Canada, Inc. if reduced sensitivity of the pathogen to FBN Tebuconazole 250 is suspected.

If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, if available.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.

For further information and to report suspected resistance, contact a Farmer’s Business Network Canada, Inc. representative at 1-844-200-FARM (3276) or at www.croplife.ca.

APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS:

OBSERVE THE FOLLOWING PRECAUTIONS WHEN SPRAYING IN THE VICINITY OF AQUATIC AREAS SUCH AS LAKES, RESERVOIRS, RIVERS, PERMANENT STREAMS, MARSHES OR NATURAL PONDS, AND ESTUARIES.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product should be used only in alternate years.

Do not apply by ground or air within 30 metres of aquatic areas listed above.

Do not cultivate within 3 metres of an aquatic area to allow growth of a vegetative filter strip.

The aquatic buffer zone of 30 meters **may not** be modified by the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

SPRAY DRIFT MANAGEMENT FOR AERIAL AND GROUND APPLICATIONS

For the protection of non-target habitats, overspray or drift to any body of water or other environmentally sensitive habitats must be avoided. Do not apply under conditions where drift to an unprotected person(s), occupied dwelling, or to food, forage, or other plantings can occur.

The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions.

1. **SPRAY BOOM:** For aerial applications, the **spray boom** should be mounted on the aircraft so as to minimize drift caused by wing tip vortices. The minimum practical boom length should be used and must not exceed 65% of the wing span or rotor diameter.
2. **DROPLET SIZE:** An important factor influencing drift is the droplet size. Small droplets (<150 to 200 microns) drift to a greater extent than large droplets. Within typical equipment specifications, applications should be made to deliver the largest **droplet spectrum** that provides sufficient control and coverage. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible and by avoiding excessive spray boom pressure.
3. **SPRAY HEIGHT:** For aerial applications, spray should be released at the lowest height consistent with efficacy and flight safety. Applications more than 3 metres above the crop canopy should be avoided.
4. **WIND:** Do not apply during periods of dead calm, when winds are gusty or when wind speed is greater than 16 km/hour at flying height at the site of application. Use extreme caution when any body of water or other environmentally sensitive habitat is on downwind side of aircraft.
5. **TEMPERATURE INVERSIONS:** Do not make aerial or ground applications during temperature inversions. Drift potential is high during temperature inversions. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a cloud. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however if fog is not present, inversions can also be identified by the movement of smoke from a ground source. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an

inversion, while smoke that moves upward and rapidly dissipates indicates good vertical mixing.

6. **HUMIDITY AND TEMPERATURE:** Low humidity and high temperatures increase the evaporation rate of spray droplets and therefore the likelihood of increased spray drift. Avoid spraying during conditions of low humidity and/or high temperature.

AERIAL APPLICATION LABEL INSTRUCTIONS

Directions For use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of a spotter plane is recommended. Use mechanical flaggers only.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear coveralls, chemical resistant gloves, and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 47 litres per hectare.

ROTATIONAL CROPS

Treated areas may be replanted immediately following harvest with any crop listed on this label. For crops not listed on this label, do not plant back within 120 days of last application.

All other products mentioned are trademarks of their respective companies.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33604
Product Name :	FBN PYRACLOSTROBIN TECHNICAL FUNGICIDE
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2019-11-20
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2024-12-31
Marketing Type :	TECHNICAL ACTIVE
Active Ingredient(s):	PYRACLOSTROBIN PIN: methyl [2-({[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxy}methyl)phenyl]methoxycarbamate IUPAC: methyl 2-[1-(4-chlorophenyl)pyrazol-3-yloxymethyl]-N-methoxycarbanilate CASN = 175013-18-0 (GUAR = 98.6 % NOMINAL)

Date Modified: 2020-08-31

FBN PYRACLOSTROBIN TECHNICAL FUNGICIDE
FOR USE IN MANUFACTURING, FORMULATING OR REPACKAGING
SOLID

MANUFACTURING

ACTIVE INGREDIENT: Pyraclostrobin 98.6%

REGISTRATION NO. 33604

PEST CONTROL PRODUCTS ACT

WARNING - POISON
SKIN IRRITANT

READ THE LABEL BEFORE USING

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

NET CONTENTS: 25 – 100 kg

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

DIRECTIONS FOR USE

To be used only in the manufacture of a fungicide which is registered under the *Pest Control Products Act*.

LIMITATIONS

Do not apply directly as is to crops; for formulation only.

PRECAUTIONS

1. **PREVENT ACCESS BY UNAUTHORIZED PERSONNEL.**
2. Do not inhale vapours. May be fatal if inhaled.
3. Causes skin irritation. DO NOT get on skin.
4. Wash well after handling and before eating, drinking and/or smoking. Wash contaminated clothing with soap and hot water before re-use. Do not wear contaminated shoes.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

The patient should be treated symptomatically.

STORAGE

1. Keep in original container during storage.
2. Store product in cool, dry, well ventilated place away from seed, fertilizer or other pesticides.
3. Keep away from heat or open flame or other sources of heat.

DISPOSAL AND DECONTAMINATION

For spills, wear appropriate safety equipment. Absorb spilled product with inert substance such as sawdust or sand. Wash spill area with a detergent solution.

If involved in fire, use water, foam, CO₂ or a dry chemical extinguishing media. Noxious fumes may be produced under fire conditions; wear self-contained breathing apparatus. Prevent water used in fire fighting from entering public water supplies.

Canadian manufacturers using this product should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations. For additional details and information on clean-up of spills, contact the provincial regulatory agency or the manufacturer.

This product is toxic to aquatic invertebrates, fish and aquatic plants. Do not contaminate aquatic areas (streams, lakes, ponds, rivers, tidal marshes and estuaries) through spray drift, cleaning of equipment or disposal of waste.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33758
Product Name :	FBN TEBUCONAZOLE TECHNICAL
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2020-05-04
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2025-12-31
Marketing Type :	TECHNICAL ACTIVE
Active Ingredient(s):	TEBUCONAZOLE PIN: rac-(3R)-1-(4-chlorophenyl)-4,4-dimethyl-3-(1H-1,2,4-triazol-1-ylmethyl)pentan-3-ol or IUPAC: (RS)-1-p-chlorophenyl-4,4-dimethyl-3-(1H-1,2,4-triazol-1-ylmethyl)pentan-3-ol CASN = 107534-96-3 (GUAR =)

Date Modified: 2020-08-31

FBN Tebuconazole Technical

SOLID

FOR MANUFACTURING, FORMULATING OR REPACKAGING

ACTIVE INGREDIENT: Tebuconazole 98.9%

REGISTRATION NO. 33758 *PEST CONTROL PRODUCTS ACT*

READ THE LABEL BEFORE USING

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL



NET CONTENTS: 25 – 1000 kg

Farmer's Business Network Canada, Inc.
PO Box 5607
High River
Alberta, Canada
T1V 1M7

1-844-200-FARM (3276)

DIRECTIONS FOR USE:

Use FBN Tebuconazole Technical to formulate seed treatment products and crop fungicides registered under the *Pest Control Products Act*. To be used only in the manufacture of a pesticide which is registered under the *Pest Control Products Act*. Labelling for products formulated from FBN Tebuconazole Technical must conform to the *Pest Control Products Act*. For specific information on federally registered uses, contact Farmer's Business Network Canada, Inc.

Detailed information on chemical and physical properties and other formulating recommendations for FBN Tebuconazole Technical are available upon request from Farmer's Business Network Canada, Inc. Obtain and read this information before undertaking the formulation of FBN Tebuconazole Technical in order to avoid formulation hazards and insure a satisfactory finished product.

PRECAUTIONS:

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. Harmful if swallowed.

Avoid contact with eyes or clothing. Wash thoroughly with soap and warm water after handling and before eating, drinking or smoking. Wash contaminated clothing with soap and hot water before reuse.

FIRST AID:

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label, or product name and Pest Control Product Registration number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

No specific antidote is available. Treat symptomatically.

In case of poisoning, please contact Farmer's Business Network Canada, Inc. by telephone at 1-844-200-FARM (3276).

ENVIRONMENTAL PRECAUTIONS:

Toxic to aquatic organisms. DO NOT discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other waters.

STORAGE: Store in a cool, dry place. To prevent contamination store this product away from food or feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SPILL OR LEAK PROCEDURE: Handle and open container in a manner as to prevent spillage. If the container is leaking or material spilled for any reason or cause, carefully sweep material into a pile. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Dispose of pesticide as directed below. In spill or leak incidents, keep unauthorized people away. You may contact Farmer's Business Network Canada, Inc. by telephone at 1-844-200-FARM (3276) for decontamination procedures or any other assistance that may be necessary.

DISPOSAL:

Canadian manufacturers should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and clean up of spills, contact the manufacturer or the provincial regulatory agency.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	31063
Product Name :	SMOKE 41% GLYPHOSATE
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2013-09-10
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2023-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	GLYPHOSATE (PRESENT AS ISOPROPYLAMINE SALT OR ETHANOLAMINE SALT) isopropylammonium N-(phosphonomethyl)glycinate or 2-hydroxyethanaminium [(phosphonomethyl)amino]acetate CASN = (GUAR = 360 g/l NOMINAL)

Date Modified: 2020-08-31

2020-03-05
(revised
2020-05-25)
2020-0493

GROUP

9

HERBICIDE

SMOKE 41 % GLYPHOSATE[®]

**HERBICIDE
AGRICULTURAL AND INDUSTRIAL
Solution**



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L BULK

ACTIVE INGREDIENT: Glyphosate, 360 grams acid equivalent per litre present as the isopropylamine salt

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1(844)200-FARM (3276)

EMERGENCY TELEPHONE NUMBER
IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL
CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666

Registration No. 31063 Pest Control Products Act

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

READ ENTIRE LABEL CAREFULLY BEFORE USE

SMOKE 41% GLYPHOSATE is a non-selective, non-residual herbicide containing 360 g/L glyphosate (free acid) as isopropylamine salt, formulated as a water-soluble liquid. It is used for the control of most herbaceous weeds in agricultural and industrial sites. The product is absorbed through the foliage and translocated throughout the plant down to the root system. Visible symptoms such as gradual wilting and yellowing are usually obvious within 2 to 4 days of application to annual weeds, but may not be apparent for 7 to 10 days on perennial weeds.

GENERAL PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- MAY CAUSE EYE IRRITATION
- HARMFUL IF SWALLOWED
- AVOID CONTACT WITH EYES AND SKIN
- WASH HANDS AND EXPOSED SKIN BEFORE EATING, DRINKING, OR SMOKING, AND AFTER WORK

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S contact 1-866-727-5226 or www.croplife.ca.

FOR GOOD AGRICULTURAL PRACTICE:

- WEAR GLOVES, COVERALLS, AND EYE PROTECTION DURING MIXING, LOADING, CLEANUP, AND REPAIR PROCEDURES
- WASH SPLASHES FROM SKIN AND EYES IMMEDIATELY

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

EMERGENCY TELEPHONE NUMBER: IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666

TOXICOLOGICAL INFORMATION

Treat Symptomatically.

ENVIRONMENTAL PRECAUTIONS

SMOKE 41% GLYPHOSATE is toxic to aquatic organisms and non-target terrestrial plants. Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment. Avoid all drift or contact with vegetation for which treatment is not intended as damage or destruction may occur. Observe buffer zones specified under **Directions for Use**.

- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic, or plastic-lined containers. **DO NOT MIX, STORE, OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or the spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury if ignited by open flame, spark, welder's torch, lighted cigarette, or other ignition source.

STORAGE

KEEP AWAY FROM FOOD, DRINK, AND ANIMAL FEEDSTUFFS. KEEP ONLY IN ORIGINAL CONTAINER, TIGHTLY CLOSED.

IN CASE OF SPILL:

Contact the provincial regulatory authorities and Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) in case of spill, and for clean-up of spills. For environmental concerns call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

DISPOSAL OF CONTAINERS

RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location for the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsing to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

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RETURNABLE-REFILLABLE CONTAINERS

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NOTICE TO USER:

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SMOKE 41 % GLYPHOSATE ®

**HERBICIDE
AGRICULTURAL AND INDUSTRIAL
Solution**



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L BULK

ACTIVE INGREDIENT: Glyphosate 360 g/L grams acid equivalent per litre present as the isopropylamine salt

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-3276

EMERGENCY TELEPHONE NUMBER
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CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666

Registration No. 31063 Pest Control Products Act

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

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RETURNABLE-REFILLABLE CONTAINERS

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NOTICE TO USER:

This control product is to be used only in accordance with the directions on this label. It is an offense under the *Pest Control Products Act* to use a control product in a way that is inconsistent with the directions on the label.

PRECAUTIONS

Avoid contact with desirable vegetation by direct application or spray drift as severe injury or destruction may result. Avoid drift or overspray to non-target vegetation and wildlife habitats.

DO NOT USE IN GREENHOUSES.

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

The restricted entry interval is 12 hours after application for all agricultural uses.

Drain and clean sprayer and parts immediately after using this product.

Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Reduced results may occur if water which contains suspended soil is used; examples are water from ponds and ditches. Poor control may also occur when treating weeds heavily covered with dust.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

GENERAL PRODUCT INFORMATION

SMOKE 41% GLYPHOSATE is a water-soluble herbicide for non-selective weed control. SMOKE 41% GLYPHOSATE is applied as a foliar spray for the control of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

SMOKE 41% GLYPHOSATE moves through the plant from the point of foliage contact into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds effects may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down the activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant, which advances to complete browning of above ground growth and deterioration of underground plant parts.

SMOKE 41% GLYPHOSATE does not provide residual weed control. For subsequent residual weed control, apply a registered residual herbicide. Read and carefully observe cautionary statements and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. **Do not apply if rainfall is forecast for the time of application.**

DIRECTIONS FOR USE

GENERAL APPLICATION NOTES:

Results are best when weeds are actively growing. If weeds have been mowed, allow to return to recommended growth stage. Delay application until vegetation has emerged to the stage described for the control of such vegetation under the ANNUAL and PERENNIAL WEED CONTROL charts of this booklet to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or rootstocks of perennials will not be affected by the spray and will continue to grow. For this reason, best control of most perennial weeds is obtained when the treatment is made at the late growth stages approaching maturity.

Always use higher rates of SMOKE 41% GLYPHOSATE per hectare within the recommended range when weed growth is heavy or dense or weeds are growing in an undisturbed (uncultivated) area. **Do not treat weeds under poor growing conditions such as drought, flooding, frost, high temperatures, disease or insect damage as reduced weed control may result.** Reduced results may also occur when treating weeds heavily covered with dust. Heavy rainfall immediately after application may wash the product off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

SMOKE 41% GLYPHOSATE should only be mixed with products recommended on this label. Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

TANK MIXES

SMOKE 41% GLYPHOSATE may be used with the following surfactants: Agral 90[®], Ag-Surf[®], Companion[™]. See charts on **TANK MIXES FOR ANNUAL** and for **PERENNIAL WEED CONTROL**.

SMOKE 41% GLYPHOSATE may be used with the following herbicides:

Banvel[®], Oracle[®], Pardner[®], Pursuit[®], 2,4-D low volatile ester or amine formulations: See section on **MINIMUM AND ZERO TILLAGE TANK MIXES**.

Princep Nine-T[®], Simadex[®]: See section on **TREE, VINE, AND BERRY CROPS**.

DyCler 480[®], Simazine 80W[®], Simadex[®] Flowable, 2,4-D amine: See section on **NONCROPLAND AND INDUSTRIAL USES**.

Always refer to the surfactant and herbicide labels for specific instructions regarding the use of that product.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Trade Name

Agral 90[®], DyCler[®], Princep Nine-T[®]

Ag-Surf[®]

Banvel[®], Pursuit[®]

Companion[™]

Pardner[®], Simadex[®]

Oracle

Trademark Owners

Syngenta

IPCO

BASF

Dow Chemical Co.

Bayer CropScience

Gharda USA, Inc

VEGETATION CONTROLLED

SMOKE 41% GLYPHOSATE controls many annual and perennial grasses, broadleaf weeds and woody brush and trees when applied as recommended and under the conditions described. For information on how to control specific weeds, including herbicide rate, refer to the ANNUAL WEED CONTROL and PERENNIAL WEED CONTROL charts of this label. The following is a partial list of the weeds controlled:

Table 1: Annual weed control by SMOKE 41% GLYPHOSATE®

Weed Type: Annual Weeds	Genus and Species
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Broomcorn millet	<i>Panicum miliaceum</i>
Cheatgrass	<i>Bromus tectorum</i>
Chickweed	<i>Stellaria media</i>
Cocklebur	<i>Xanthium strumarium</i>
Corn Spurry	<i>Spergula arvensis</i>
Common Lamb's quarters	<i>Chenopodium album</i>
Cow Cockle	<i>Saponaria vaccaria</i>
Dodder	<i>Cuscuta spp.</i>
Downy brome	<i>Bromus tectorum</i>
Eastern black flowering nightshade	<i>Solanum ptycanthum</i>
Fall panicgrass	<i>Panicum dichotomiflorum</i>
Fleabane (Canada)	<i>Erigeron canadensis</i>
Flixweed	<i>Descurainia sophia</i>
Giant foxtail	<i>Setaria faberii</i>
Green foxtail	<i>Setaria viridis</i>
Green Smartweed	<i>Polygonum scabrum</i>
Hairy crabgrass	<i>Digitaria sanguinalis</i>
Hempnettle	<i>Galeopsis tetrahit</i>
Kochia	<i>Kochia scoparia</i>
Lady's thumb	<i>Polygonum persicaria</i>
Narrow-leaf hawk's beard	<i>Crepis tectorum</i>
Narrow-leaf vetch	<i>Vicia angustifolia</i>
Night flowering catchfly	<i>Silene noctiflora</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Persian darnel	<i>Lolium persicum</i>
Prickly lettuce	<i>Lactuca scariola</i>
Ragweed (common)	<i>Ambrosia artemisiifolia</i>

Weed Type: Annual Weeds	Genus and Species
Redroot Pigweed	<i>Amaranthus retroflexus</i>
Russian thistle	<i>Salsola pestifier</i>
Shepherd's purse	<i>Capsella bursa-pastoris</i>
Smooth crabgrass	<i>Digitaria ischaemum</i>
Smooth Pigweed	<i>Amaranthus hybridus</i>
Sowthistle (annual)	<i>Sonchus oleraceus</i>
Stinkweed	<i>Thlaspi arvense</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Volunteer barley	<i>Hordeum spp.</i>
Volunteer canola	<i>Brassica spp.</i>
Volunteer corn	<i>Zea mays</i>
Volunteer flax	<i>Linum spp.</i>
Volunteer wheat	<i>Triticum spp.</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
Wild mustard	<i>Sinapsis arvensis</i>
Wild oats	<i>Avena fatua</i>
Wild tomato	<i>Solanum triflorum</i>
Yellow foxtail	<i>Setaria glauca</i>

Table 2: Perennial weeds control by SMOKE 41% GLYPHOSATE®

Weed Type: Perennial Weeds	Genus and Species
Alfalfa	<i>Medicago sativa</i>
Bluegrass (Canada)	<i>Poa compressa</i>
Bluegrass (Kentucky)	<i>Poa pratensis</i>
Brome grass (smooth)	<i>Bromus inermis</i>
Canada thistle	<i>Cirsium arvense</i>
Common cattail	<i>Typha latifolia</i>
Common milkweed	<i>Asclepias syriaca</i>
Cottontop	<i>Eriophorum chamissonis</i>
Curled dock	<i>Rumex crispus</i>
Dandelion	<i>Taraxacum officinale</i>
Foxtail barley	<i>Hordeum jubatum</i>
Hemp dogbane	<i>Apocynum cannabinum</i>
Hoary cress	<i>Cardaria draba</i>
Japanese knotweed	<i>Polygonum cuspidatum</i>
Perennial sowthistle	<i>Sonchus arvensis</i>
Poison ivy	<i>Rhus radicans</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Quackgrass	<i>Elytrigia repens</i>
Toad flax	<i>Linaria vulgaris</i>
Wormwood (Absinth)	<i>Artemisia absinthium</i>
Yellow Nutsedge	<i>Cyperus esculentus</i>

Table 3: Woody weeds, bush and tree control by SMOKE 41% GLYPHOSATE®

Weed Type: Bush and Trees	Genus and Species
Alder	<i>Alnus spp.</i>
Birch	<i>Betula spp.</i>
Broadleaf meadowsweet	<i>Spiraea latifolia</i>
Canadian rhododendron	<i>Rhododendron canadense</i>
Cedar	<i>Thuja spp.</i>
Cherry	<i>Prunus spp.</i>
Douglas fir	<i>Pseudotsuga spp.</i>
Hemlock	<i>Tsuga spp.</i>
Maple	<i>Acer spp.</i>
Mountain-fly honeysuckle	<i>Lonicera villosa</i>
Pine	<i>Pinus spp.</i>
Poplar	<i>Populus spp.</i>
Raspberry	<i>Rubus spp.</i>
Salmonberry	<i>Rubus spectabilis</i>
Sheep laurel	<i>Kalmia angustifolia</i>
Snowberry (western)	<i>Symphoricarpos occidentalis</i>
Sweet fern	<i>Comptonia peregrina</i>
Willow	<i>Salix spp.</i>
Withrod	<i>Viburnum cassinoides</i>

Resistance Management Recommendations:

For resistance management, SMOKE 41% GLYPHOSATE® Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to SMOKE 41% GLYPHOSATE® Herbicide and other Group 9 herbicides. The resistance biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of SMOKE 41% GLYPHOSATE® Herbicide or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance contact Farmer's Business Network Canada, Inc. at 1-844-200-3276.

APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS

GROUND BOOM AND BOOMLESS SPRAYERS

Mixing: For field or industrial type sprayers, fill the spray tank with one half the required amount of water. Add the proper amount of SMOKE 41% GLYPHOSATE® herbicide (see appropriate chart) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent any excessive foaming. Remove the hose from the tank immediately after filling to avoid back siphoning into water source (a one-way valve should be installed to prevent back siphoning). Use of mechanical agitators may cause excessive foaming. By-pass lines should terminate at the bottom of the tank.

Application: Use flat fan nozzles in boom sprayers. To control perennial weeds, woody brush, and trees as listed, apply SMOKE 41% GLYPHOSATE® in 50 to 300 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure. To control annual weeds as listed, apply SMOKE 41% GLYPHOSATE® in 50 L to 100 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure.

KNAPSACK SPRAYERS, HAND HELD & HIGH-VOLUME EQUIPMENT

High volume spraying utilizes handguns or other suitable nozzle arrangements to apply a directed spray to weeds, woody brush, and trees. Use coarse sprays only.

Mixing: Mix the proper amount of SMOKE 41% GLYPHOSATE with water in a large container. Fill the sprayer with the mixed solution. Unless otherwise stated, make a 1% solution of SMOKE 41% GLYPHOSATE in water (1 L of SMOKE 41% GLYPHOSATE in 100 L of water). A 2% solution (2 L of SMOKE 41% GLYPHOSATE in 100 L of water) should be used on harder to control perennials.

Application: Spray coverage should be uniform and complete. Apply on a spray-to-wet basis. Do not spray to the point of runoff. Hand gun application should be properly directed to avoid spraying desirable plants.

MIST BLOWERS

For control of woody weeds, brush, and trees listed in the VEGETATION CONTROLLED list, use the recommended rate of SMOKE 41% GLYPHOSATE in at least 200 L of water per hectare.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

WIPER, WICK AND ROLLER EQUIPMENT

These applicators apply SMOKE 41% GLYPHOSATE solution directly onto the weeds by contacting the weed with an absorbent material containing the herbicide solution. Weeds should be a minimum of 15 cm above the desired vegetation to prevent contact of SMOKE 41% GLYPHOSATE with the desired vegetation.

Mixing: Mix the proper amount of SMOKE 41% GLYPHOSATE with water in a large container. Use this mixed solution in the wiper, wick or roller equipment.

Application: These applicators can be used to control weeds in:

- Industrial sites, tree plantings, and non-crop sites as specified.
- The following agricultural crops:
 - Apple, cherry, peach, pear and plum orchards, grape vineyards, soybeans, dry beans, strawberries, and Cranberries (note: applications must be made before initial pod set in soybeans and dry beans).

The applicator should be adjusted so that the contact point of the wiper, roller, or wick is at least 5 cm above the desirable vegetation. Droplets or foam of the SMOKE 41% GLYPHOSATE solution settling on desirable vegetation may result in discoloration, stunting or destruction. Best results are obtained when more of the weed is exposed to the herbicide solution. It is recommended that two applications be made in opposite directions, if possible. Weeds not contacted will not be affected. This may occur in dense clumps, severe infestation, or when the height of the weeds varies so that not all weeds are contacted. In these instances, a repeat treatment may be necessary.

AVOID CONTACT WITH DESIRABLE VEGETATION

Wiper, Wick, Roller Application Notes:

- Maintain wiper equipment in good operating condition. Care must be taken with all types of wipers to ensure that the absorbent material does not become oversaturated, causing the herbicide to drip onto desirable vegetation.
- Avoid leakage or dripping onto desirable vegetation.
- Adjust height of wiper applicator to ensure proper contact with weeds.
- Keep wiping surfaces clean.
- Maintain recommended roller speed on roller applicators while in use.
- DO NOT use wiper equipment when weeds are wet.
- DO NOT operate equipment at ground speeds less than 4 or greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to ensure good coverage of weeds.
- Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.
- Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended SMOKE 41% GLYPHOSATE herbicide solution directly to the weed.
- Mix only the amount of solution to be used during a one day period, as reduced activity may result from use of leftover solution. Thoroughly drain and clean all equipment immediately after use.

AERIAL APPLICATION

Aerial Application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h (preharvest) or 8 km/h (rights-of-way) at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572,1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Directions for Use (for additional information see section on Aerial Application for Industrial Rights-of-Way ONLY)

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Aerial Use Precautions

Apply only when weather conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following: Volume: Apply the recommended rate in a spray volume of 30-100 L/ha.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of SMOKE 41% GLYPHOSATE accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

BUFFER ZONES:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies). Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Agricultural, forestry and non-cropland systems		Maximum number of applications	Buffer Zones (metres) Required for the Protection of:		
			Aquatic habitats	Terrestrial habitats	
Agricultural crop system and ground boom application method					
Pre-seeding applications for cranberry, filberts, hazelnut and all other crops. Established pasture and summer fallow.		1	1	1	
Filberts or hazelnut		4	1	1	
Strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)		2	1	2	
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, forage grasses and legume including seed production		3	1	2	
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)		4	1	2	
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes		3	1	3	
Agricultural crop system and airblast application method (including mist blower)					
Pasture		1	20	30	
Turfgrass (Prior to establishment or renovation)		2	25	35	
Forest plant system and ground boom application method					
<i>Forest and woodlands > 500 ha</i> Site preparation		2	1	NR	
Forest plant system and airblast application method (including mist blower)					
<i>Forest and woodlands > 500 ha</i> Site preparation		2	1	NR	
Non-cropland system and ground boom application method					
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	3*	
Non-cropland system and airblast application method (including mist blower)					
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	30*	
Agricultural crop system and aerial application method		Wing type			
Crops for pre-seeding treatments only		Fixed and rotary wing	1	15	20
Canola (glyphosate tolerant varieties)		Fixed and rotary wing	3	20	40
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils		Fixed wing	2	20	35
		Rotary wing	2	20	30
Forage grasses and legume including seed production		Fixed and rotary wing	1	20	40
Soybean (glyphosate tolerant varieties)		Fixed wing	3	20	45
		Rotary wing	3	20	40
Summer fallow		Fixed wing	1	20	45
		Rotary wing	1	20	40
Pasture		Fixed wing	1	30	70
		Rotary wing	1	30	55
Forestry system and aerial application method					
<i>Forest and woodlands >500 ha</i> Site preparation		Fixed wing	2	10	NR
		Rotary wing	2	1	NR

<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	5	NR
	Rotary wing	2	1	NR
Non-cropland system and aerial application method				
Non-crop land and industrial uses: rights-of way areas only	Fixed wing	3	100	NR
	Rotary wing	3	60	NR

* Buffer zones for the protection of terrestrial habitats are not required for forestry uses or for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

NR = Not Required

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

AGRICULTURAL AND CROPLAND USES

The following are use situations for SMOKE 41% GLYPHOSATE herbicide. The type of vegetation present and the use situation will dictate the choice of application equipment. Information on the equipment selected to apply SMOKE 41% GLYPHOSATE can be found in the APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section. Use rates can then be selected from the ANNUAL and PERENNIAL WEED CONTROL charts.

PREPLANT TREATMENT

SMOKE 41% GLYPHOSATE can be applied prior to planting of all crops for control of emerged weeds listed on the label. Ensure weeds are at the recommended growth stage at the time of application. Apply BEFORE seeding or transplanting crop.

SUMMER FALLOW

SMOKE 41% GLYPHOSATE may be applied in summer fallow to control weeds listed on the label. Ensure weeds are at the recommended growth stage and actively growing at the time of application. Reduced control may result if weeds are drought stressed. Repeat treatments may be necessary to control later germinating weeds.

MINIMUM AND ZERO TILLAGE SYSTEMS (ALL FIELD CROPS INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES AND CORN)

SMOKE 41% GLYPHOSATE may be applied before or after seeding but before crop emerges for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Weeds should be treated at the growth stage according to the ANNUAL and PERENNIAL WEED CONTROL charts. DO NOT APPLY AFTER CROP EMERGENCE.

Since SMOKE 41% GLYPHOSATE does not provide residual control, application too far in advance of seeding may allow weeds to germinate between application and crop emergence.

MINIMUM AND ZERO TILLAGE TANK MIXES

SMOKE 41% GLYPHOSATE Herbicide plus Pardner[®] (bromoxynil) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley, and oats. See chart on TANK MIXES for ANNUAL WEED CONTROL.

SMOKE 41% GLYPHOSATE Herbicide plus Pursuit[®] can be applied before or after seeding, but prior to crop emergence in soybeans. SMOKE 41% GLYPHOSATE herbicide will control emerged weeds listed on this label when applied as directed (see VEGETATION CONTROLLED lists). Pursuit[®] will control weeds germinating from seed. Add the recommended rates of both products in 100 L of water/ha following the instructions on the Pursuit[®] herbicide label.

Refer to the Pursuit[®] label for further information on weeds controlled, application directions, and use precautions. Only SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT and WINTER WHEAT may be planted the season following a Pursuit[®] application. Winter wheat may be planted the same year as a Pursuit[®] application to soybeans, but not earlier than 120 days after the application.

DO NOT APPLY AFTER CROP EMERGENCE.

**Table 4: SMOKE 41% GLYPHOSATE® TANK MIXES for ANNUAL WEED CONTROL:
Summer fallow & minimum tillage systems treatment rates**

TANK MIXTURES	RATE L/ha	WEEDS CONCONTROLLED++	COMMENTS: (Apply in 50-100 L/ha water; add 350 mL/ha surfactant)
SMOKE 41% GLYPHOSATE + Banvel® or Oracle®	0.75 - 1.0 + 0.29	Volunteer cereals, wild oats, green foxtail, volunteer canola (rapeseed), wild mustard, flixweed*, lamb's quarters, lady's thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *SMOKE 41% GLYPHOSATE applied at 1.0 L/ha rate only. **Suppression only. See other tank mixtures for control options.
SMOKE 41% GLYPHOSATE + Pardner®	0.75 - 1.0 + 1.25	Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's thumb, stinkweed, wild buckwheat*, redroot pigweed**, kochia**, wild oats**	This tank mix for summer fallow use; and prior to planting wheat, oats, and barley in minimum tillage systems. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use SMOKE 41% GLYPHOSATE at 1.0L/ha rate for wild buckwheat control. **1.0L/ha rate, suppression only. See other tank mixtures for control options.
SMOKE 41% GLYPHOSATE® + 2,4-D#	0.75 - 1.0 + 1.2	Volunteer cereals, wild oats*, green foxtail*, volunteer canola (rapeseed), wild mustard, Flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters**, Russian thistle**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use SMOKE 41% GLYPHOSATE at 1.0 L/ha rate only for wild oat and green foxtail control. **Suppression only. See other tank mixtures for control options.

#0.56 kg ai/ha of 2,4-D. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

++For foxtail barley suppression, refer to chart on ANNUAL WEED CONTROL.

NOTE: All SMOKE 41% GLYPHOSATE herbicide tank mixtures for annual weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf® and Companion™. Surfactant should be added at a rate of 350 mL per hectare in 50-100 L of clean water.

Table 5: SMOKE 41% GLYPHOSATE® tank mixtures for perennial weed control summer fallow or fall stubble

TANK MIXTURES	RATE L/ha	WEEDS CONTROLLED	COMMENTS:
SMOKE 41% GLYPHOSATE® + Banvel® or Oracle®	1.7 L/ha + 1.25 L/ha	Canada thistle, perennial sow thistle	Apply in 100-200 L/ha water; add 350 mL/ha surfactant Summer fallow: Cultivate in the spring and apply when majority of thistles are 15 to 25 cm tall, and before the bud stage. Cultivate 3 weeks after application. Fall stubble: Apply to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: All SMOKE 41% GLYPHOSATE® herbicide tank mixtures for perennial weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf®, or Companion™.

Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mix.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

FALL STUBBLE

Apply in the fall as a postharvest stubble treatment for control of perennial weeds including quackgrass and Canada thistle. Allow the Canada thistle and quackgrass to regrow to 20-25 cm tall. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frost prior to treatment may decrease control.

SPOT TREATMENT (IN CROP)

SMOKE 41% GLYPHOSATE may be applied for the control of Canada thistle, quackgrass and other perennial weeds in forage crops, barley, wheat, oats, soybeans and legumes, including seed production. Treatments may be made up to heading of small grain, initial pod set on soybeans and legumes and emergence of seed heads. Avoid drift beyond the treated area.

Application can be made using a boom sprayer, knapsack, or high-volume equipment (see APPLICATION AND MIXING INSTRUCTIONS section). Applications should be made using the same growth stages as listed in the ANNUAL and PERENNIAL WEED CONTROL charts. Or, use a 1% solution for annual weeds and quackgrass and a 2% solution for other perennial weeds (a 1% solution equals 1 litre SMOKE 41% GLYPHOSATE® herbicide in 100 litres of spray solution). The 1% and 2% solutions should be applied to wet, but not to run off.

NOTE: THE CROP IN THE TREATED AREA WILL BE KILLED BY THE TREATMENT.

DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS BEFORE GRAZING IN, OR HARVESTING TREATED AREAS AS FORAGES.

FORAGE GRASSES AND LEGUMES

Use SMOKE 41% GLYPHOSATE® to control or suppress existing vegetation prior to emergence of legumes and grasses. If legumes and grasses are underseeded with a cover crop, SMOKE 41% GLYPHOSATE® must be applied prior to planting any cover crop.

PASTURE RENOVATION

SMOKE 41% GLYPHOSATE® may be used to control or suppress existing vegetation for zero tillage seeding of legume or grass pasture into established sod for renovation. Weed growth should be at least 20 cm high and most weed seeds should have germinated at the time of spraying.

FORAGE SEED PRODUCTION (FOR SPOT TREATMENT)

SMOKE 41% GLYPHOSATE® may be applied as a spot treatment for control of perennial weeds such as quackgrass and Canada thistle in seed fields. Apply to weeds at least 20-25 cm in height but before emergence of seed head.

The crop in the treated area will be killed. For this reason, take particular care to avoid drift outside the treated area.

PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, DANDELION, TOADFLAX and MILKWEED; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, dandelion, toadflax and common milkweed, and season-long control of perennial sow thistle, SMOKE 41% GLYPHOSATE® can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linolenic acid varieties), lentils, peas, dry beans and soybeans. DO NOT apply to crops grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tilling may interfere with harvest operations. **EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN THE ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.**

SMOKE 41% GLYPHOSATE® should be applied pre-harvest at 2.5 L/ha in 50 to 100 L/ha of clean water, by GROUND APPLICATION ONLY.

When to Apply: Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS chart for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7-14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Use Precautions: Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g. sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife, should be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

*** DO NOT apply using aerial application equipment ***

Table 6: Guidelines for timing of preharvest applications

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL INDICATORS
WHEAT, BARLEY, OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including glyphosate tolerant varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linolenic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour, pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

Refer to the general guidelines for aerial application as well as specific instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION

FOR PRAIRIE PROVINCES ONLY (Including INTERIOR AND PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators, and aerial application services, approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patternation) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 - 600 microns) or very coarse (600 - 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a SMOKE 41% GLYPHOSATE® aerial application training course.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24-month period. All pilots who do not meet the minimum experience standard must work under the direct daily supervision of a qualified pilot.

DIRECTIONS FOR USE

SMOKE 41% GLYPHOSATE® may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. SMOKE 41% GLYPHOSATE® can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linoleic acid varieties), lentils, peas, dry beans, and soybeans. DO NOT apply to any crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

SMOKE 41% GLYPHOSATE® should be applied at 2.5 L/ha in 20 - 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS for visible indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 - 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Table 7: Guidelines for timing of preharvest applications (restricted use)

CROP(S)	PERCENT GRAIN MOISTURE	VISIBLE SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linoleic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
FORAGES	Not applicable	Normal stage for forage harvesting.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS (including glyphosate tolerant varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.

USE PRECAUTIONS:

AVOID DRIFT ON TO IMPORTANT WILDLIFE HABITATS. EXTREME CARE MUST BE TAKEN WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS.

Apply only in wind conditions in compliance with local and/or provincial regulations. Do not apply when other climatic conditions, including lesser wind velocities, will allow significant drift to occur.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that disperse spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. See # 1 of the NATURE OF RESTRICTION section for additional details.

Do not overspray or allow drift on to bodies of water, wetlands† and/or wetland vegetation (e.g., sloughs, swamps, bogs, marshes, potholes), shelterbelts, woodlots and other cover on the edge of fields.

IN ORDER TO REDUCE THE DRIFT HAZARD TO NON-TARGET PLANTS AND AQUATIC VEGETATION IN THE HABITATS LISTED ABOVE, DO NOT APPLY WITHIN 100 METRES OF THE EDGE OF ANY OF THESE HABITATS. Do not apply directly to roadside ditches, or apply under conditions that would favour drift into roadside ditches.

†A wetland is any land where the water table stands at or above the land surface for at least part of the year, and contains vegetation associated with wetlands such as bulrushes, sedges, cattails, etc.

Ensure uniform application - To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills.

PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.

The maintenance of an organic coating (paint) which meets aerospace specification MILC-38412 may prevent corrosion.

TREE, VINE, and BERRY CROPS

SMOKE 41% GLYPHOSATE® controls annual and perennial weeds in established vineyards or orchards, in blueberry, cranberry, and strawberry, or for site preparation prior to transplanting tree or vine crops. See chart on WEED CONTROL IN TREE, BERRY, and VINE CROPS for rate and time of application information.

This product does not provide residual or pre-emergent weed control. Repeat applications may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. For subsequent weed control, follow a program using residual herbicides or use repeated applications of SMOKE 41% GLYPHOSATE®.

DO NOT APPLY MORE THAN 35 L OF SMOKE 41% GLYPHOSATE® HERBICIDE PER HECTARE PER YEAR. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF THE HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURE BROWN BARK CAN RESULT IN SERIOUS CROPDAMAGE.

Allow annual and perennial weeds that have been mowed, grazed, or cut, time to regrow to recommended growth stage for treatment.

Applications may be made with boom sprayer, shielded sprayers, hand held and high-volume orchard guns, or with wiper, wick, or roller equipment (orchards, vineyards, cranberry and strawberry only).

TREE PLANTING - Shelterbelts, Nursery Stock, Woody Ornamentals

SMOKE 41% GLYPHOSATE® may be applied to control annual and perennial weeds listed on this label. This may be used for site preparation prior to establishing plantations, or as a post directed spray in established plantations of the following species:

Table 8: Trees where SMOKE 41% GLYPHOSATE® may be applied to control

Deciduous Trees		Coniferous Trees	
Name	Genus and Species	Name	Genus and Species
Ash	<i>Fraxinus spp.</i>	Fir	<i>Abies spp.</i>
Caragana	<i>Caragana spp.</i>	Juniper	<i>Juniperus spp.</i>
Cherry	<i>Prunus spp.</i>	Pine	<i>Pinus spp.</i>
Elm	<i>Ulmus spp.</i>	Spruce	<i>Picea spp.</i>
Lilac	<i>Syringa spp.</i>	Yew	<i>Taxus spp.</i>
Maple	<i>Acer spp.</i>		
Mountain ash	<i>Sorbus americana</i>		
Poplar	<i>Populus spp.</i>		
Russian olive	<i>Elaeagnus spp.</i>		
Willow	<i>Salix spp.</i>		

SPRAY MAY CONTACT MATURE BROWN BARK ONLY.

Avoid contact with non-target plants, foliage, or suckers of established plantations.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

GLYPHOSATE TOLERANT CROPS

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA (I.E., VARIETIES WITH THE ROUNDUP® READY GENE).

WARNING: APPLY SMOKE 41% GLYPHOSATE® HERBICIDE ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to the **GENERAL PRODUCT INFORMATION, GENERAL APPLICATION NOTES,** and **APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS** sections.
- Apply SMOKE 41% GLYPHOSATE® herbicide in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visible yellowing may occur when SMOKE 41% GLYPHOSATE® herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

*** DO NOT apply using aerial application equipment ***

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

Table 9: Weed control in canola with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.825 – 1.875	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, wild buckwheat*, shepherd's purse*, cow cockle*, night-flowering catchfly*, smartweed*, storksbill*, flixweed*, narrow-leaf hawk's beard*, roundleaf, mallow* * *</p> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sowthistle, dandelion</p> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sowthistle* * * *</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure. Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use the 1.25 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd's purse, cow cockle and night-flowering catchfly at the 1-3 leaf stage of the crop or for control of smartweed at the 4-6 leaf stage.</p> <p>** A single application at the 1.25 L/ha rate is required. *** Sequential applications at the 1.25 L/ha rate are required. **** Sequential applications at the 1.25 L/ha rate are required or a single application of 1.875 L/ha.</p> <ul style="list-style-type: none"> • For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. • Maximum 2.5 L/ha is allowed for the post emergence use.

TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in glyphosate tolerant canola (i.e., varieties with the Roundup Ready Gene), apply a tank mixture of 0.28 L/ha of Lontrel® 360 with 1.25 L/ha of SMOKE 41% GLYPHOSATE® Herbicide, in 100 litres of water per hectare. Apply when canola is in the 2-6 leaf stage. Refer to the Lontrel® 360 and to the SMOKE 41% GLYPHOSATE® Herbicide labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

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WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

WARNING: APPLY SMOKE 41% GLYPHOSATE® HERBICIDE ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

*** DO NOT apply using aerial application equipment ***

Table 10: Weed control in soybean with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Use 100-200 L/ha water volumes)
2.5	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's thumb, Pennsylvania smartweed, eastern black flowering nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, milkweed*, yellow nutsedge*, fall panicum, wild proso millet	A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. This second application must be made no later than the flowering stage of the soybean. *Suppression only
2.5 (x2)	First trifoliolate leaf stage through flowering	Perennial sowthistle, Canada thistle, wire-stemmed muhly	A second (sequential) application of 2.5 L/ha will improve control in heavy weed infestations. If sequential applications of 2.5 L/ha are used they should be at least 2 weeks apart for best results on perennial weeds. This second application must be made no later than the flowering stage of the soybean. Perennial sowthistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. Wire-stemmed muhly should be 10-20 cm in height and actively growing. Plants not fully emerged at the time of application will escape the treatment.

Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

Tank Mixtures for Roundup Ready Soybeans

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit® herbicide may be tank mixed with SMOKE 41% GLYPHOSATE® herbicide at a rate of 2.5 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit® and apply up to and including the 3rd trifoliolate leaf stage of the Roundup Ready soybeans in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit® as per instructions on the Pursuit® label and then add SMOKE 41% GLYPHOSATE® herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of SMOKE 41% GLYPHOSATE® herbicide and Pursuit® herbicide on glyphosate tolerant soybeans.

Only one application per season of SMOKE 41% GLYPHOSATE® herbicide at 2.5 litres per hectare tank mixed with Pursuit® herbicide at 0.16 to 0.21 litres per hectare is permitted.

Refer to the Pursuit® herbicide label for further safety precautions and handling instructions.

NONCROPLAND AND INDUSTRIAL USES

When applied as recommended under the conditions described, SMOKE 41% GLYPHOSATE® will control weeds in the non-cropland and industrial uses as listed in the WEED CONTROL IN NONCROPLAND, INDUSTRIAL USES chart.

TURFGRASS

SMOKE 41% GLYPHOSATE® may be applied to control existing vegetation prior to turf grass establishment or renovation. **DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.**

Where existing vegetation is growing under field or unmowed conditions, apply SMOKE 41% GLYPHOSATE® to actively growing weeds at the growth stages given in the charts on ANNUAL and PERENNIAL WEED CONTROL. Where the vegetation is growing under mowed turf grass management, apply SMOKE 41% GLYPHOSATE® after omitting at least one regular mowing to allow sufficient growth for good spray interception and translocation into underground plant parts.

Tillage or renovation techniques, such as vertical mowing, coring or slicing, should be delayed for 7 days after application to allow proper translocation into the underground plant parts. Delay establishment of the turfgrass to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient weed regrowth must be attained prior to application.

AVOID ALL CONTACT WITH DESIRABLE VEGETATION IN THE VICINITY OF THE RENOVATION OR ESTABLISHMENT AREA.

TREE INJECTION APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Trees may be controlled if SMOKE 41% GLYPHOSATE® is injected directly into the trunk using suitable equipment that penetrates into the living tissue.

SMOKE 41% GLYPHOSATE® is to be used at a rate of 1 mL (undiluted product) per 10 cm of trunk diameter at chest height. The injections should be spaced evenly around the tree and below any major branches. Application may be done during periods of active growth and full leaf expansion.

Control of trees greater than 20 cm may not be acceptable. Total control may not be evident for 1-2 years following treatment. This treatment will only provide suppression of big-leaf maple; late fall application will provide optimum suppression of big-leaf maple.

CUT STUMP APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Application must be made using low-pressure equipment (i.e. squirt bottle). Apply SMOKE 41% GLYPHOSATE® immediately to the surface of the freshly cut stump (i.e. within 5 minutes) at a rate of 0.5 mL SMOKE 41% GLYPHOSATE® for every 5 cm of trunk diameter at chest height. Treat only the cambial tissues (outer edge) of the cut surface. Do not treat the central area of the stump, or exposed roots or bark. This treatment may be made at any time of year, except during heavy sap flow or when freezing temperatures prevent application of SMOKE 41% GLYPHOSATE®. A water-soluble dye added to the solution may be used as a treatment indicator. Total control may not be apparent until 1-2 years after treatment.

WOODY BRUSH AND TREES (FOLIAR APPLICATIONS)

Spray coverage should be uniform and complete. Do not spray to the point of run off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on the target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

For woody brush and trees, apply 3 to 6 litres of SMOKE 41% GLYPHOSATE® per hectare. Use ground boom or boomless equipment, or apply as a 1 to 2% solution using hand held high volume equipment. Use the 6 L/ha rate for maple, alder and willow* species, as well as hard to control perennial weed species. (* Suppression only).

INDUSTRIAL SITES, RIGHTS-OF-WAY, RECREATIONAL AND PUBLIC AREAS

SMOKE 41% GLYPHOSATE® may be applied to control brush, trees, and annual and perennial weeds listed on this label **in industrial and rights-of-way areas, such as:** railways, forest roadsides, pipelines, highways, pumping stations, petroleum tank farms, telephone and power rights-of-ways, etc., **and in recreational and public areas, such as:** parks, golf courses, schoolyards, airports and other public areas.

NOTE: For all industrial sites, rights-of-ways, recreational and public areas, repeat treatment may be necessary to control regeneration or new growth.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

GROUND APPLICATION FOR ALL NON-CROPLAND USES:

For woody brush and trees, apply SMOKE 41% GLYPHOSATE® at 3 to 6 L/ha using ground boom, or boomless, or mist blower equipment. Or, apply as a 1 to 2% solution using hand-held high volume equipment. Use the higher rate for maple, alder and willow* species, and for hard to control perennial weeds (*suppression only). Apply as directed to foliage of actively growing vegetation. Spray coverage should be uniform and complete. Do not spray to the point of runoff, or allow spray drift to contact desirable vegetation as severe injury or destruction may occur.

Mowed or tilled weeds should be allowed to reach optimum growth stage at time of application.

DO NOT APPLY UNDER WIND OR OTHER CONDITIONS THAT ALLOW DRIFT.

AERIAL APPLICATION: FOR INDUSTRIAL RIGHT-OF-WAY ONLY:

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Use Precautions

Directions for Use:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical-resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing

ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a spray volume of 30-100 L/ha.

Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of SMOKE 41% GLYPHOSATE[®] accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion. For woody brush and trees, apply 3-6 L/ha. Use 6 L/ha for maple, alder and willow* species, and for hard to control perennial weed species. Use the recommended rates of the herbicide in 30 to 100 litres of water per hectare. As density of vegetation increases, spray volume should be increased within the allowed range to ensure complete coverage. (*suppression only)

PURPLE LOOSESTRIFE CONTROL

- DO NOT TREAT PLANTS OVER OPEN WATER. SMOKE 41% GLYPHOSATE[®] herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using handheld equipment, spray-to-wet.
- For wiper applications, see WIPER, WICK AND ROLLER EQUIPMENT section.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

Table 11: Weed control in non-cropland areas, and industrial uses

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Annual grasses and broad leaf weeds	2.25-3.5	50 - 100	1	Treat actively growing weeds.
Perennial Weeds	2.5	50 - 300	1	Treat actively growing weeds. Add 0.5% v/v of a recommended surfactant when using more than 150 L of water (see MINIMUM AND ZERO TILLAGE TANK MIXES) Use higher rate for heavy infestations and for long term control.
Quackgrass	4.75-7.0	50 - 300	2	
Canada thistle (bud stage)	4.75-7.0	100 - 300	2	
Purple loosestrife	6.0	300 – 600	1-2 (or 33% for wiper application)	See PURPLE LOOSESTRIFE CONTROL section for instructions on application. Summer through fall is optimum.
Other perennials	7.0-12	100 – 300	2	
Brush and Trees Birch, Cherry, Poplar, Western Snowberry, Willow	3.0-6.0	100-300	1-2	Summer through early fall.
Maple, Raspberry/ Salmonberry, Alder	6.0	100 – 300	2	Late summer through fall. Fall is optimum.
Turfgrass renovation: Annual & Perennial Weeds	2.5 – 12.0	100 – 300	1-2	Use higher end of rate range for perennials.

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Roadside vegetation (1-2 metres wide along shoulder)	1) 0.75 – 1.0 + 1.25 – 2.5L DyCleer 480® Agricultural Herbicide OR 2) 0.75 – 1.0 + 0.30L DyCleer 480® Agricultural Herbicide + 1.2L 2,4-D amine 500	25 – 150	-	Refer to tank mix section on product labels for specific weeds controlled. Refer to chart on ANNUAL WEED CONTROL for rates for specific weeds. For different 2,4-D formulations, adjust the rate accordingly. Do not apply to standing water.
Residual Control Annual & Perennial weeds.	2.5 – 12 + 4.0 – 9.0 L Simadex® Flowable	200 – 400	-	This tank mix will provide season-long control of most germinating broadleaf weeds and grasses, and may also provide post- emergent control of certain annual weeds. Do not apply to coarse, sandy soil or gravelly soil. One application per year. Use the most restrictive label directions for each product in the mix.

Table 12: Weed control in tree, vine and berry crops

CROP	RATE (L/Ha)	PRE-HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Apples, apricot, cherry (sweet/sour), peaches, pears, plums	2.25-12 (directed spray)	30	3	Annual and perennial weeds	Apply as directed spray with no more than 275 kPa pressure.
Apples, grapes	Tank Mix 2.25-12 + Simazine 80W® 2.0-4.5 Kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long pre-emergent control. Do not apply to coarse, sandy or gravelly soil. Use the more restrictive label directions for each product in the mix. DO NOT apply to orchards established less than 1 year or vineyards established less than 3 years. Simazine 80W® rate is equivalent to 2.25-5.0 kg/ha Princep Nine-T®; or 4.0-9.0 L/ha Simadex®.
Grapes	2.25-12 (directed spray)	14	3	Annual and perennial weeds	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. Do not apply to vines that have been established less than 3 years.
Highbush (cultivated) blueberry	2.8-5.6 (directed spray)	30	1	Quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	1-2% solution (spot treatment)	Apply in non-bearing year only	1	Wood brush	Apply as directed spray in mid-summer of the vegetative (non-bearing) year. See AGRICULTURAL AND CROPLAND USES section for instructions on spot treatments.

CROP	RATE (L/Ha)	PRE- HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Filberts, hazelnut (established plantations)	2.25-3.5 (directed spray)	14	-	Annual weeds	Use as directed spray, with no more than 275 kPa pressure.
Walnut, chestnut, Japanese chestnut	2.25-12 (directed spray)	-	2	Annual and perennial weeds	Apply late spring and fall, post-harvest but prior to a killing frost. Apply in 200-300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 2% wiper solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Cranberry	20% Solution (1L SMOKE 41% GLYPHOSA TE® + 4 L water)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Strawberry	1-2% Solution (spot treatment) 33% solution (wiper applicator)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage. See AGRICULTURE AND CROPLAND USES section for instructions on spot treatments. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.

Table 13: Annual weed control

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or boomless	Wild oats, green foxtail, volunteer barley volunteer wheat, volunteer canola, wild mustard, lady's thumb, stinkweed.	Weeds up to 8 cm in height	0.75	50-100	For wild oats apply at 1 to 3 leaf stage. Add 350 mL of a surfactant registered for use such as Agral 90®, Ag-Surf®, and Companion™. For heavy wild oat infestations use 1.0 L/ha rate.
	All annual grasses listed above plus foxtail barley* (suppression only). All annual broadleaf weeds listed above plus flixweed** and kochia**.	Weeds 8 cm to 15 cm	1.0	50-100	Add 350 mL of Surfactant registered for use as listed above. *Apply before initiation of seed head or senescence of the lower leaves. **Suppression only. Refer to higher rates of this table.
	All annual grasses listed above plus downey brome, giant foxtail and Persian darnel. All annual broadleaf weeds listed above plus lamb's quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, narrow-leaf hawk's beard***.	Weeds up to 15 cm in height	1.25-1.9	50-100	No additional surfactant required. *DO NOT use these rates on plants greater than 8 cm in height. **For 3 to 4 leaf stage use 1.9 L/ha rate. ***For weeds 8 cm to 15 cm in height use 1.9 L/ha.
	All annual grasses listed above plus crab grass and annual blue grass. All annual broadleaf weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch.	Weeds up to 15 cm in height	2.25	50-100	
	All annual grasses and broadleaf weeds listed above.	Weeds over 15 cm in height	3.5	50-100	

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Wipers and wicks	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	This mixture is a 33% solution. Contact point for wiper or wick must be at least 5 cm above desirable vegetation. In severe weed infestations, reduce ground speed to ensure adequate control. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	0.5- 1.0	10	This mixture is a 5- 10% solution. Roller speed 50-150 rpm. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications.

Table 14: Perennial weed control

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or Boomless	Alfalfa	Early bud to full bloom stage. Fall Applications only.	3.7-5.0	50-300	Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see ALFALFA CONTROL WITH 2,4-D TANK MIX section under SPECIAL NOTES FOR PERENNIAL WEED CONTROL section.
Boom or Boomless	Canada thistle	Bud stage or beyond	4.75 - 7.0	100-300	Allow 5 days after application before tillage. Heavy frost prior to application may decrease control.
		Rosette stage (summer fallow)	2.5	50-100	Apply in clean water using flat fan nozzles. Ensure proper growth stage by performing last summer fallow tillage between July 5 and August 1st. Allow regrowth for a minimum of 5 weeks to reach rosette stage and a minimum of 15 cm in diameter. Allow 10 days after application before tillage. Treatment after a mild frost is possible if leaves are still green and actively growing but not after heavy damaging frost.
Boom or Boomless	Dandelion	Up to 15 cm. in height	2.5	50-100	Allow 3 or more days after treatment before tillage for all rates. Use the higher rates when infestations are heavy.
		Over 15 cm. in height	3.7	50-300	Refer to DANDELION notes in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. Allow 7 or more days after treatment before tillage. For more information, see PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, AND DANDELION;
		Rosette to full bloom (preharvest)	2.5	50-100	SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Foxtail barley	Seeding to heading	2.5-5	50-100	Allow a minimum of 1 day after treatment before tillage or seeding. Use higher rates for larger more established plants, heavy infestations, or if plants are stressed.
Boom or Boomless	Common Milkweed	Bud to full bloom	2.5	50-100	Reduced results may occur if sprayed after full bloom. Milkweed may not all be in the correct stage, therefore, repeat treatments

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
		(preharvest) Bud to full bloom	12	100-300	may be required. Repeat treatment may be required. Allow 7 days or more after application before tillage. See PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Toadflax	Vegetative stage (summer fallow) Bud to full bloom (pre-harvest)	2.5	50-100	Apply in clean water using flat fan nozzles. Allow 7 or more days after treatment before tillage in summer fallow. For more information, see Summer fallow Control under TOADFLAX in SPECIAL NOTES FOR PERENNIAL WEED CONTROL section, or PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Quack grass control, light to moderate infestations	3 to 4 green leaves or more	2.5	50-300	Apply in clean water using flat fan nozzles. Allow 3 or more days after treatment before tillage. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. For higher water volumes (ie.,150- 300L/ha) an approved surfactant must be added at 0.5 L per 100L of clean water. (0.5% v/v). Refer to list of surfactants in QUACKGRASS part of SPECIAL NOTED FOR PERENNIAL WEED CONTROL section. See also below.
	Quack grass (long term control, heavy infestations, high water volumes)	3-4 green leaves or more	2.5 - 7.0	50 - 300	Allow 3 or more days after treatment before tillage. Rates higher than 2.5L/ha will provide more consistent, longer term control especially with heavy infestations and/or higher (150-300 L) water volumes. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information.

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
	Other perennial weeds	Early heading or early bud stage (See VEGETATION CONTROLLED section)	7-12	100-300	Use higher rate for weeds beyond 8 cm in height or in heavy weed infestation. Allow 7 days after application before tillage. SMOKE 41% GLYPHOSATE® rate is equivalent to 70 to 120 mL/100 m ² .
	Woody brush and trees	Actively growing from June through August.	3-6	100-300	Use higher rate for maple, alder, Rubus species and willow*. Spray to wet.
High volume or knapsack	Woody brush and trees	Actively growing from June through August.	1-2.0	100	This mixture is a 1 to 2% solution. Use higher rate for maple, alder, Rubus species and willow*. Spray to wet. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on high volume or knapsack applications.
Wipers and wicks	Perennial weeds	Weeds to be at least 15 cm above desirable vegetation.	1	2	See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual and perennial weeds	Weeds to be at least 15 cm above desirable vegetation.	0.5-1.0	10	This mixture is a 5-10% solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications. This treatment will only suppress perennial weeds contacted. Roller speed 50-150 rpm.
Tree Injection	Trees*	During periods of active growth and full leaf expansion except during periods of heavy sap flow.	0.5 mL/5 cm of trunk diameter at chest height	None	Suitable equipment must be used to penetrate to living tissue. Space applications evenly around the circumference of the trunk below major branches. Control of trees with trunk diameters greater than 20 cm may not be acceptable. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on TREE INJECTION APPLICATIONS. *Suppression only for willow.

SPECIAL NOTES FOR PERENNIAL WEED CONTROL

QUACKGRASS

For **season-long control on fall tilled ground**: Apply 2.5 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SURFACTANTS

The following is a list of approved surfactants for use with SMOKE 41% GLYPHOSATE® Herbicide for control of quackgrass:

Agral 90®
Companion™
Ag-Surf®

Always refer to surfactant label for specific instructions regarding use of that product.

CANADA THISTLE

Control of Canada thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SMOKE 41% GLYPHOSATE® HERBICIDE PLUS BANVEL® OR ORACLE® TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summer fallow or in postharvest stubble, apply 1.7 litres per hectare SMOKE 41% GLYPHOSATE® Herbicide plus 1.25 litres per hectare Banvel® or Oracle® in 100-200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90®, Ag-Surf®

or Companion™. For best results in summer fallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

TOADFLAX

Control of Toadflax in a Summer Fallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 10th and July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are a minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 2.5 to 5.0 litres per hectare SMOKE 41% GLYPHOSATE® Herbicide and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 2.5 to 5.0 litres per hectare SMOKE 41% GLYPHOSATE® Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14-day interval between application and planting is required.

Use the higher SMOKE 41% GLYPHOSATE® Herbicide rates when perennial grasses are prevalent.

ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to **PERENNIAL WEED CONTROL WITH SMOKE 41% GLYPHOSATE HERBICIDE®** table.

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow up tillage after application should be delayed 5 to 7 days for best results. See **ANNUAL AND PERENNIAL WEED CONTROL** tables for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required to control weeds regenerating from seeds or other underground parts.

Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

SMOKE 41% GLYPHOSATE® is a registered trademark of Farmer's Business Network Canada, Inc.

Companion™ and Lontrel® are the registered trademarks of Dow AgroSciences LLC.

Aatrex Nine-O®, Agral®, DyCleer®, Princep Nine-T® are the registered trademarks of Syngenta Group Company.

Ag-Surf® is a registered trademark of IPCO.

Banvel®, Marksman and Pursuit® are the registered trademarks of BASF.

Pardner® and Simadex® are the registered trademarks of Aventis.

Oracle® is a registered trademark of Gharda.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	31261
Product Name :	FOAX HERBICIDE
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2014-02-05
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2024-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	CLODINAFOP-PROPARGYL PIN prop-2-yn-1-yl (2R)-2-{4-[(5-chloro-3-fluoropyridin-2-yl)oxy]phenoxy}propanoate IUPAC prop-2-ynyl (R)-2-[4-(5-chloro-3-fluoro-2-pyridyloxy)phenoxy]propionate CASN = 105512-06-9 (GUAR = 240 g/l NOMINAL)

Date Modified: 2020-08-31

GROUP	1	HERBICIDE
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FOAX HERBICIDE
Emulsifiable Concentrate

AGRICULTURAL

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER, OKANAGAN AND CRESTON FLATS REGIONS OF BRITISH COLUMBIA ONLY.

A post emergence herbicide for control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian dandelion and volunteer canary seed in Spring wheat and Durum wheat.

ACTIVE INGREDIENT:

Clodinafop-propargyl240 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING. KEEP OUT OF REACH OF CHILDREN.

CAUTION



POISON

WARNING: EYE & SKIN IRRITANT

Warning, contains the allergen epoxidized soybean oil

REGISTRATION NO.: 31261 *PEST CONTROL PRODUCTS ACT*

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

NET CONTENTS: 1.84L, 3.68L, 4.7L, 14L, 15L, 55L, 200L, 450L, 1100L, Bulk

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

This product contains a PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING. Vomiting may cause aspiration pneumonia. Treat symptomatically for ingestion and/or skin and eye contact.

PRECAUTIONS

- CAUTION – POISON
- WARNING – EYE AND SKIN IRRITANT
- KEEP OUT OF THE REACH OF CHILDREN.
- Harmful if swallowed.
- May irritate eyes. Do not wear contact lenses when using.
- DO NOT get in eyes or on skin. Avoid contact with clothing. Wear coveralls or long-sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.

- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse. Wash thoroughly with soap and water after handling. Handle and apply only as recommended on this label.
- Do not eat, drink or smoke while mixing, loading or during application.
- Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours after application.

ENVIRONMENTAL HAZARDS

This product contains aromatic petroleum distillates which are toxic to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic material such as clay).

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorized persons and animals. Store separate from food, feed, and fertilizer.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

For information on disposal of unused, unwanted product, contact the provincial regulatory authorities, manufacturer or Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills or call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

CONTAINER DISPOSAL:

For recyclable containers:

Do not reuse this container for any purpose. This is a recyclable container, and may be disposed of at a container collection site. For details on collection and disposal of containers contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

**IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL OR POISONING, CALL
1-613-996-6666 (collect) OR *666 (cell).**

FOAX HERBICIDE
Emulsifiable Concentrate

AGRICULTURAL

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER, OKANAGAN AND CRESTON FLATS REGIONS OF BRITISH COLUMBIA ONLY.

A post emergence herbicide for control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian darnel and volunteer canary seed in Spring wheat and Durum wheat.

ACTIVE INGREDIENT:

Clodinafop-propargyl240 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING. KEEP OUT OF REACH OF CHILDREN.

CAUTION



POISON

WARNING: EYE & SKIN IRRITANT

Warning, contains the allergen epoxidized soybean oil

REGISTRATION NO.: 31261 *PEST CONTROL PRODUCTS ACT*

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NOTICE TO USER

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FIRST AID

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If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

This product contains a PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING. Vomiting may cause aspiration pneumonia. Treat symptomatically for ingestion and/or skin and eye contact.

PRECAUTIONS

- CAUTION – POISON
- WARNING – EYE AND SKIN IRRITANT
- KEEP OUT OF THE REACH OF CHILDREN.
- Harmful if swallowed.
- May irritate eyes. Do not wear contact lenses when using.
- DO NOT get in eyes or on skin. Avoid contact with clothing. Wear coveralls or long-sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.
- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse. Wash thoroughly with soap

- and water after handling. Handle and apply only as recommended on this label.
- Do not eat, drink or smoke while mixing, loading or during application.
- Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours after application.

ENVIRONMENTAL HAZARDS

This product contains aromatic petroleum distillates which are toxic to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic material such as clay).

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorized persons and animals. Store separate from food, feed, and fertilizer.

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2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL OR POISONING, CALL 1-613-996-6666 (collect) OR *666 (cell).

PRODUCT INFORMATION

FOAX HERBICIDE is a systemic, post-emergence herbicide for the selective control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian dandelion and volunteer canary seed in all types of Spring wheat and Durum wheat. Do not use FOAX HERBICIDE on barley, as crop injury will occur. Do not apply this product using aerial application equipment except under conditions specified on this label.

FOAX HERBICIDE is absorbed by the leaves and is rapidly translocated to the growing points of leaves and stems. Thorough coverage of the plants is essential for consistent control. Actively growing susceptible grasses stop growing within 48 hours of treatment. Depending on species, growing conditions and crop competition, leaves and growing points turn yellow within one to three weeks after application. Further colour changes and loss of vigour will be observed, followed by a browning and complete control three to five weeks after application.

Although FOAX HERBICIDE does not control broadleaf weeds, FOAX HERBICIDE can be tank-mixed with a wide range of broadleaf herbicides to provide broad spectrum weed control in wheat. See section entitled "TANK MIXES of FOAX HERBICIDE WITH BROADLEAF WEED HERBICIDES" and refer to the appropriate Tank Mix section for ground and aerial application.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic matter such as clay.)

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.

CROPS: Spring Wheat and Durum Wheat

FOAX HERBICIDE can be used on all varieties of spring wheat and Durum wheat. Observe minimum interval to harvest of 60 days after treatment.

Do not apply on barley or any crop other than Spring Wheat or Durum wheat, as crop damage will result. Do not allow spray to drift to adjacent fields seeded to crops other than spring wheat or Durum wheat.

Do not treat wheat underseeded to forages. Observe a minimum of three (3) days before grazing livestock on crops treated with FOAX HERBICIDE.

For use directions specific to application by air, please refer to sections on aerial application. For aerial application precautions, please refer to the precautions section.

WEEDS CONTROLLED: Wild Oats, Volunteer (Tame) Oats, Green Foxtail, Yellow Foxtail, Barnyard grass, Persian Darnel and Volunteer Canary Seed

TIMING OF APPLICATION:

TIMING	GROWTH STAGE	ADDITIONAL REMARKS
WILD OATS	1 to 6 leaf stage on main stem	Prior to emergence of 4 th tiller.
VOLUNTEER (TAME) OATS	3 to 6 leaf stage on main stem	Prior to emergence of 4 th tiller.
GREEN FOXTAIL AND YELLOW FOXTAIL (wild millet, pigeon grass)	1 to 5 leaf stage on main stem	For optimum control apply prior to emergence of the 3 rd tiller and while foxtail is actively growing.
BARNYARD GRASS	1 to 5 leaf stage on main stem	For optimum control apply before tillering, and while barnyard grass is actively growing.
PERSIAN DARNEL	1 to 5 leaf stage on main stem	For optimum control apply before tillering, and while Persian darnel is actively growing.
VOLUNTEER CANARY SEED	1 to 6 leaf stage on main stem	Prior to emergence of 4 th tiller.
SPRING WHEAT AND DURUM WHEAT	Prior to emergence of 4 th tiller	When tank-mixing with a broadleaf herbicide, always refer to the label of the broadleaf partner prior to use.

- For optimum results, apply FOAX HERBICIDE to actively growing weeds. An early application will maximize crop yields by reducing weed competition. Weeds emerging after application of FOAX HERBICIDE will not be controlled.
- Weed control following application of FOAX HERBICIDE alone, or in combination with broadleaf weed herbicides, can be reduced or delayed under stress conditions such as drought, heat, insufficient fertility, flooding or prolonged cool temperatures. Grass escapes or re-tillering may occur if application is made during prolonged stress conditions. Optimum weed control will be obtained if application of FOAX HERBICIDE is delayed until the stress conditions have ended and weeds are once again actively growing.
- FOAX HERBICIDE alone can be used 30 minutes before rainfall.
- Do not apply to crop that is stressed by conditions such as frost, low fertility, drought, flooding, disease or insect damage as crop injury may result.

RATE OF USE FOR GROUND APPLICATION:

Apply the recommended rate of FOAX HERBICIDE and the recommended rate of an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant in a minimum of 50 to 100 L of water per hectare.

<p>To control:</p> <p>WILD OATS VOLUNTEER (TAME) OATS GREEN FOXTAIL YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER CANARY SEED</p>	<p>To control:</p> <p>WILD OATS VOLUNTEER (TAME) OATS GREEN FOXTAIL YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER CANARY SEED PERSIAN DARNEL</p>
<p>Rates for use with 50 L/ha water</p>	
<p>Apply:</p> <p>230 mL/ha of FOAX HERBICIDE + 400 mL/ha of (SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 50 L/ha of water (0.8% volume/volume)</p>	<p>Apply:</p> <p>290 mL/ha of FOAX HERBICIDE + 500 mL/ha of (SCORE or ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 50 L/ha of water (1.0% volume/volume)</p>
<p>Rates for use with 100 L/ha water</p>	
<p>Apply:</p> <p>230 mL/ha of FOAX HERBICIDE + 800 mL/ha of SCORE, ASSIST CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 100 L/ha of water (0.8% volume/volume)</p>	<p>Apply:</p> <p>290 mL/ha of FOAX HERBICIDE + 1 L/ha of SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 100 L/ha of water (1.0% volume/volume)</p>

NOTE: Always use an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with FOAX HERBICIDE.

RATE OF USE FOR AERIAL APPLICATION:

Apply the recommended rate of FOAX HERBICIDE and the recommended rate of an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant in a minimum of 30 L of water per hectare according to the following table:

To Control: WILD OATS	To Control: WILD OATS GREEN FOXTAIL YELLOW FOXTAIL PERSIAN DARNEL
Apply: 230 mL/ha of FOAX HERBICIDE + 240 mL/ha of SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 30 L/ha of water (0.8% volume/volume)	Apply: 290 mL/ha of FOAX HERBICIDE + 300 mL/ha of SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 30 L/ha of water (1.0% volume/volume)

NOTE: Always use adjuvants of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with FOAX HERBICIDE.

TANK MIXES of FOAX HERBICIDE WITH BROADLEAF WEED HERBICIDES – GROUND APPLICATION:

CROP: SPRING and DURUM WHEAT

TANK MIXES WITH BROADLEAF WEED HERBICIDES, IN SPRING WHEAT and DURUM WHEAT:

For broad spectrum control of wild oats, green foxtail and broadleaf weeds, FOAX HERBICIDE can be tank-mixed with broadleaf herbicides as described in the following tables. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, recropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions and follow the more restrictive label. When tank-mixing always add the broadleaf herbicide(s) to the spray tank first; followed by FOAX HERBICIDE, with SCORE or ASSIST, CROPOIL 83/17 ADJUVANT, or FOAX Adjuvant added last. For the appropriate rate of FOAX HERBICIDE with SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant, refer to the 'Rate of Use' section of the label.

Tank-Mix Partner	Product Rates	Crop Stage ¹
Dyvel [®]	1.25 L/ha	2 to 5 leaf
Refine Extra ^{® 2}	20 g/ha	2 leaf to flag leaf
Buctril [®] M	1.0 L/ha	2 leaf to flag leaf
Estaprop [®]	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Turboprop [®] 600	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Dichlorprop [®] -D	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Lontrel 360 EC tank mixed with MCPA Ester (assume 500 series)	280 to 420 mL/ha tank mixed with 1.1 L/ha	3 leaf to flag leaf
Curtail [™] M	2.0 L/ha	3 leaf to just before flag leaf
Thumper [®] EC	1.0 L/ha	2 leaf to early flag leaf
2,4-D Amine (assume 500 series) ³	840 mL to 1.1 L/ha	3 leaf to flag leaf
MCPA Amine (assume 500 series) ³	840 mL to 1.1 L/ha	3 leaf to flag leaf
MCPA Ester (assume 500 series)	840 mL to 1.1 L/ha	3 leaf to flag leaf
Pardner [®]	1.0 L/ha	2 leaf to flag leaf
Ally ^{® 2}	7.5 g/ha	2 leaf to flag leaf
Attain [®] Herbicide Tank Mix	600 mL/ha of Attain A + 1.0 L/ha of Attain B	4 leaf to flag leaf

¹ Always consult the label of the broadleaf herbicide prior to use.

² Addition of surfactants other than Score, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant is not required.

³ A reduction in control of green foxtail and wild oats may be observed when FOAX HERBICIDE is tank mixed with 2,4-D Amine and MCPA Amine.

Temporary crop injury may occur with tank-mixes under extreme weather conditions or when the crop is suffering from stress due to inadequate or abnormally high moisture level or extreme temperatures.

Do not tank-mix with any chemical additives, pesticides, or fertilizers that are not recommended on this label.

TANK MIXES OF FOAX HERBICIDE WITH BROADLEAF WEED HERBICIDES - AERIAL APPLICATION:

CROP: SPRING WHEAT and DURUM WHEAT

For broad spectrum control of wild oats, green foxtail and broadleaf weeds, FOAX HERBICIDE can be tank-mixed with Buctril M. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, recropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions and follow the more restrictive label. Use in a minimum of 30L of water per hectare.

Tank-mixes of FOAX HERBICIDE with broadleaf weed herbicides - Aerial application: When tank-mixing, always add the broadleaf herbicide (Buctril M) to the spray tank first; followed by FOAX HERBICIDE, with an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant added last. For the appropriate rate of FOAX HERBICIDE with an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant refer to the 'Rate of Use for Aerial Application' section of the label.		
Tank-Mix Partner	Product Rates	Crop Stage:

Buctril M	1.0 L/ha	2 leaf to flag leaf
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¹Always consult the label of the broadleaf partner prior to use.

BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:	
		Aquatic Habitat	Terrestrial habitat
Field sprayer*	Spring wheat and durum wheat	15	0
Aerial	Spring wheat and durum wheat	72	76

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING INSTRUCTIONS - GROUND APPLICATION:

1. Clean spray tank and half fill with clean water. Start agitation or bypass system.
2. If a broadleaf herbicide, insecticide or fungicide is to be used, add the product **FIRST** prior to adding FOAX HERBICIDE and agitate for 2-3 minutes.
3. Add correct amount of FOAX HERBICIDE.
4. Agitate for 2-3 minutes.
5. Add correct amount of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant.
6. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
7. After any break in spraying operations, agitate thoroughly before spraying again.
- 8. Use the spray suspension as soon as it is prepared.**
9. If an oil film starts to build up in the tank, drain tank and then clean with a detergent.

SPRAYING INSTRUCTIONS - GROUND APPLICATION:

1. FOAX HERBICIDE can be applied by ground or air. For aerial application instructions, refer to the section entitled "SPRAYING INSTRUCTIONS - AERIAL APPLICATION" which follows this section.

2. Water Volume: 50 to 100 litres per hectare when applied alone and a minimum of 100L/ha when tank-mixed with broadleaf herbicides
3. Spray Nozzles: 80° or 110° flat fan stainless steel nozzles are recommended for optimal spray coverage. Application of the spray mixture at a 45° angle in the direction of travel will result in improved spray coverage. Use 50 mesh nozzle screens. Do not use flood type nozzles, controlled droplet application equipment, spray foils or hollow cone nozzles.
4. Pressure: 275-310 kPa.
5. Apply uniformly at 6-8 km/hr and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from an over application.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

MIXING INSTRUCTIONS - AERIAL APPLICATION:

1. Fill the mixing tank 1/2 full with clean water. Start gentle agitation.
2. If a broadleaf herbicide is to be used, add the product FIRST prior to adding FOAX HERBICIDE and agitate for 2-3 minutes then add correct amount of FOAX HERBICIDE.
3. Agitate for 2-3 minutes.
4. Add correct amount of an adjuvant of either Score, Assist, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant.
5. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
6. Fill aircraft spray tank and maintain gentle agitation while spraying.
7. After any break in spraying operations, agitate thoroughly before spraying again. Do not let contents stand without agitation.
- 8. Use the spray suspension as soon as it is prepared.**
9. If an oil film starts to build up in the tank, drain tank and then clean with a detergent.

SPRAYING INSTRUCTIONS - AERIAL APPLICATION:

1. FOAX HERBICIDE can be applied by ground or by air. For ground application instructions, refer to the section entitled "SPRAYING INSTRUCTIONS - GROUND APPLICATION" which precedes this section.
2. Water Volume - Aerial application: Minimum of 30 litres per hectare when applied alone or when tank mixed with Buctril M.
3. Ensure uniform application. To avoid uneven or overlapped application, use appropriate marking devices. Do not use human flaggers.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification, with a volume medium diameter (VMD) greater than 350 microns. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotor-span.

SPRAYER CLEAN-UP:

1. Thoroughly clean application equipment immediately after spraying. Ensure that all traces of the product are removed. The following recommendations are provided:
2. Drain and flush tank walls, boom and all hoses for ten minutes with clean water. Do not

- clean the sprayer near desirable vegetation, wells, or other water sources.
3. Remove the nozzles and screens and wash separately.
 4. Dispose of all rinsings in accordance with provincial regulations.
 5. If a broadleaf tank-mix partner is used, always check tank-mix partner label for any additional clean up procedures.

Resistance-Management Recommendations

For resistance management, FOAX HERBICIDE is a Group 1 herbicide. Any weed population may contain or develop plants naturally resistant to FOAX HERBICIDE and other Group 1 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of FOAX HERBICIDE or other Group 1 herbicides with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted.

Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.

Monitor treated weed populations for resistance development.

Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact the company Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or at www.fbn.com.

NOTE TO USER:

READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the use described below were developed by persons other than Farmer's Business Network Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Farmer's Business Network Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Farmer's Business Network Canada Inc. harmless, from any claims based on efficacy and/or phytotoxicity in connection with the use described below.

DIRECTIONS FOR USE IN THE OKANAGAN AND CRESTON FLATS REGION OF BC:

FOAX HERBICIDE can be used for the control of wild oats, green foxtail and yellow foxtail in spring wheat and durum wheat in the Okanagan and Creston Flats Regions of British Columbia. For information on crop and weed stages, rates of application, mixing and spraying instructions and precautions see the appropriate sections elsewhere on this label.

Product names marked ® or TM are registered trademarks of their respective companies.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	31365
Product Name :	CLEVER DRY FLOWABLE HERBICIDE
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2014-04-17
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2020-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	QUINCLORAC 3,7-dichloroquinoline-8-carboxylic acid CASN = 84087-01-4 (GUAR = 75 % NOMINAL)

Date Modified: 2020-08-31

GROUP	4	HERBICIDE
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CLEVER® Dry Flowable Herbicide

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass and suppression of annual and perennial sow-thistle in spring and durum wheat, spring barley, canary seed, canola, **Clearfield** canola quality *Brassica juncea*, and tame mustard (brown and oriental).

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENT: Quinclorac..... 75% DF

REGISTRATION NO. 31365 PEST CONTROL PRODUCTS ACT

IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT, CALL COLLECT DAY OR NIGHT 1-613-966-6666

**CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta Canada
T1V 1M7

1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg – 10 kg

GENERAL INFORMATION

CLEVER DF Herbicide is a dry flowable herbicide for selective post-emergence control of green foxtail (including Group 1 and Group 3 resistant biotypes), volunteer flax, cleavers, and barnyard grass in hard red spring, Canadian prairie spring, durum, Canada Western extra strong wheats, spring barley and canary seed, canola (*Brassica napus* – all varieties, including conventional, **Clearfield**®, LibertyLink® and Roundup Ready®), **Clearfield** canola quality *Brassica juncea* (e.g. canola quality *Brassica juncea* varieties with the **Clearfield** trait) and brown and oriental tame mustard.

CLEVER DF Herbicide is a herbicide with mainly systemic action. Uptake into the plant occurs through both the foliage and root system. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in inconsistent control of weeds growing underneath.

Visual symptoms of weed control of **CLEVER DF Herbicide** may take up to two weeks following application to develop. These symptoms include initial twisting to stunting, reddening and chlorosis about 14 days followed by necrosis and death about 21 days after application. Even though **CLEVER DF Herbicide** symptoms may take some time to develop, competition from the weeds treated with **CLEVER DF Herbicide** is eliminated soon after application.

DIRECTIONS FOR USE

Application Rate and Timing for Wheat, Spring Barley and Canary Seed

DO NOT APPLY BY AIR.

Apply **CLEVER DF Herbicide** at 135-165 g/ha when weeds are small and actively growing. **CLEVER DF Herbicide** will control the weeds at the timing detailed in **Table 1**. **CLEVER DF Herbicide** can be applied to wheat, spring barley and canary seed at the maximum application rates and timing detailed in **Table 1**.

Use the 135 g/ha rate ONLY for control of volunteer flax, barnyard grass, cleavers, lighter infestations of green foxtail and suppression of annual and perennial sow-thistle. Use the higher rate of 165 g/ha for control of heavier infestations of green foxtail. (Do not use the 165 g/ha rate on barley.) **Use only the 135 g/ha rate when applying CLEVER DR Herbicide to spring barley.**

Improved cleavers control in canola may be accomplished using a rate of 62 g/ha when tank mixed with Liberty 150 SN Herbicide at a rate of 3.33 L/ha on Liberty Link Canola, or with glyphosate products (360 g/L acid equivalent (ae) isopropylamine salt formulations or 540 g ae/L potassium salt formulations) at a rate of 667 g ae/ha on Roundup Ready Canola. All glyphosate products must be registered for post-emergent use on glyphosate tolerant canola varieties. Application should be made from the 2 to 6 leaf stage of the canola crop when cleavers are between the cotyledon to 3 whorls stage.

DO NOT apply **CLEVER DF Herbicide** to any field more often than every second year. This practice must be respected in order to avoid potential injury to future rotational crops, to minimize the potential for carryover and accumulation of soil residues, and to reduce the selection pressure which could contribute to the development of resistant biotypes.

Early treatment of weeds with **CLEVER DF Herbicide** is important to maximize crop yield potential through elimination of early weed competition. Some initial crop injury may be observed after application, but this is usually outgrown and should not affect crop yield.

Crop	Use Rate (g/ha)	Preharvest Interval (days)
Canola ¹ , Clearfield canola quality <i>Brassica juncea</i> , and tame mustard (brown and oriental)	135	60
Wheat (spring and Durum) and canary seed	135-165	77
Spring barley	135	80

¹*Brassica napus* – all varieties, including conventional, **Clearfield**, LibertyLink and Roundup Ready.

TABLE 1: WEED AND CROP APPLICATION TIMING TABLE

WEED	TRUE LEAF RANGE
Green foxtail	1 - 5 leaf (max 2 tillers)
Volunteer flax	1 - 8 cm.
Cleavers	1 - 3 whorls
Barnyard grass	1 - 5 leaf
Annual sow-thistle*	2 – 6 leaf
Perennial sow-thistle*	2 – 6 leaf
CROP	
Spring barley**	1 – 4 leaf (prior to tillering)
Wheat (spring and durum)	1 - 5 leaf
Canola ¹	2 - 6 leaf
Canary seed***	3 – 5 leaf
Clearfield canola quality <i>Brassica juncea</i>	2 - 6 leaf
Brown and oriental tame mustard	2 - 6 leaf

*Suppression only.

Maximum rate for barley is 135 g/ha. To avoid crop injury, apply **CLEVER DF Herbicide before spring barley tillers.

***Not to be used for human consumption or fed to livestock.

¹*Brassica napus* – all varieties, including conventional, Clearfield, LibertyLink and Roundup Ready.

SPRAYING INSTRUCTIONS

Ground Application

Use sprayers equipped with standard flat fan pesticide nozzles with a spray volume of 100 L/ha at a constant pressure of 275-425 kPa. Tilt spray nozzles 45 degrees forward to ensure better coverage. The use of 50 mesh strainers and screens is recommended.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) fine classification. Boom height must be 60 cm or less above the crop or ground.

ADDITIVES

Always use **MERGE** adjuvant at 1.0% v/v for optimum performance of **CLEVER DF Herbicide**.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

TANK MIX COMBINATIONS (BARLEY, WHEAT AND CANARY SEED APPLICATIONS ONLY):

For the appropriate rate of **CLEVER DF Herbicide**, refer to the Application Rate and Timing section of the label.

Broadleaf Weed Control

Although **CLEVER DF Herbicide** provides control of several broadleaf weeds, a tank mix with a broadleaf compound is required to give broad spectrum broadleaf weed control in wheat.

For additional control of broadleaf weeds in barley and wheat, **CLEVER DF Herbicide** can be tank mixed with any of the broadleaf herbicides listed in **Table 2**. When tank mixing **CLEVER DF Herbicide** with these broadleaf herbicides, a slight reduction in control of green foxtail may be observed. The level of green foxtail control may be improved by using the 165 g/ha rate of **CLEVER DF Herbicide** in the tank mixture for wheat only.

Refer to **Table 2** for appropriate use rates and timing of crop applications. Always refer to the labels of all tank mix partners and observe the most restrictive application directions, restrictions, precautions and personal protective equipment of all tank mix partners.

TABLE 2: TANK MIX OPTIONS FOR CLEVER DF HERBICIDE ON BARLEY, WHEAT, AND CANARY SEED

Crop	CLEVER Rate (g/ha)	Tank Mix Partner	Rate	Crop Stage	Weeds Controlled
Barley	135	MCPA Amine (assume 500 series)	1.1 L/ha	3-4 leaf	CLEVER DF Herbicide – see Table 1. Broadleaf weeds listed on MCPA Amine label.
		MCPA Ester (assume 500 series)	1.1 L/ha	3-4 leaf	CLEVER DF Herbicide – see Table 1. Broadleaf weeds listed on MCPA Ester label
		Buctril M	1.0 L/ha	2-4 leaf	CLEVER DF Herbicide – see Table 1. Broadleaf weeds listed on Buctril M label
		Refine Extra¹	20 g/ha	2-4 leaf	CLEVER DF Herbicide – see Table 1. Broadleaf weeds listed on Refine Extra label
Wheat (spring and durum)	135-165	Buctril M	1.0 L/ha	2-5 leaf	CLEVER DF Herbicide - see Table 1. Broadleaf weeds listed on Buctril M label.
		2,4-D Amine (assume 500)	0.840-1.1 L/ha	3-5 leaf	CLEVER DF Herbicide - see Table 1.

		series)			Broadleaf weeds listed on 2,4-D Amine label.
		2,4-D Ester (assume 500 series)	0.840-1.1 L/ha	4-5 leaf	CLEVER DF Herbicide - see Table 1.
		MCPA Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	Broadleaf weeds listed on 2,4-D Ester label.
		MCPA Ester (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	CLEVER DF Herbicide - see Table 1.
		Refine Extra ¹	20 g/ha	2-5 leaf	Broadleaf weeds listed on MCPA Amine label.
		Express Pack ¹ (Express + 2,4-D)	10 g/ha + 0.625 L/ha	3-5 leaf	CLEVER DF Herbicide - see Table 1. Broadleaf weeds listed on MCPA Ester label.
Canary seed ²	135	Buctril M	1.0 L/ha	3-5 leaf	CLEVER DF Herbicide - see Table 1. Broadleaf weeds listed on Refine Extra label.
					CLEVER DF Herbicide - see Table 1. Broadleaf weeds listed on Express Pack label.
					CLEVER DF Herbicide - see Table 1. Broadleaf weeds listed on Buctril M label.

¹Addition of surfactants other than Merge adjuvant is not required

²Avoid over application.

Do not delay spraying broadleaf weeds if grassy weeds are not in the correct stage for treatment. If green foxtail, wild oats and broadleaf weeds are not in the correct stages for treatment, apply separate applications of each herbicide timed to control the required spectrum of weeds. Use **MERGE** adjuvant only with all tank mixtures.

RECROPPING

Due to the residual activity of **CLEVER DF Herbicide** in the soil, land treated with **CLEVER DF Herbicide** cannot be rotated to crops other than specified in **Table 3**. To avoid injury to rotational crops, the minimum recropping intervals in **Table 3** must be followed.

TABLE 3: MINIMUM RECROPPING INTERVALS

CROP	MINIMUM RECROPPING INTERVAL (Months)	NOTES
Wheat* (spring, durum) Spring barley* Canola*	0 0 0	These crops can be re-planted in the same season as CLEVER DF Herbicide applications.
Field peas Sunflowers	10 10	These crops and the crops listed above can be planted the year following application of CLEVER DF Herbicide .

Oats	12	These crops and the crops listed above can be planted the year following application of CLEVER DF Herbicide .
Flax Lentils	10 10	These crops and the crops listed above can be planted the year following application of CLEVER DF Herbicide .

*In the event of crop failure, only canola, spring or durum wheat or spring barley may be reseeded in fields treated with **CLEVER DF Herbicide**.

CLEVER DF Herbicide should not be used on land where potatoes or vegetables are part of the rotation.

The company recommends that a field bioassay (a test strip grown to maturity) be conducted the year before growing any crops other than those listed in **Table 3**.

On lighter soils with low organic matter or under dry conditions, some crop injury may occur particularly in flax and lentils but will not reduce yield. Under these conditions, the minimum recropping interval for flax and lentils should be extended by 12 months.

Refer to the broadleaf or AVENGE 200-C Herbicide label for specific additional recropping restrictions.

RESTRICTIONS AND LIMITATIONS

1. Do not apply **CLEVER DF Herbicide** when weather conditions may cause spray drift from treated areas to adjacent crops. Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes and vegetables will be injured by spray drift of **CLEVER DF Herbicide**.
2. Do not apply **CLEVER DF Herbicide** to wheat, spring barley and canary seed under seeded to forages.
3. Do not apply **CLEVER DF Herbicide** to wheat, spring barley, canary seed, canola, **Clearfield** canola quality *Brassica juncea* or tame mustard that has been subjected to stress from conditions such as frost, hail damage, flooding, drought, extended cold period, etc.
4. Rainfall within 6 hours after application may reduce effectiveness of spray.
5. When **CLEVER DF Herbicide** is applied beyond the recommended growth stages, limited crop injury and/or unsatisfactory weed control may result.
6. Cool weather conditions or drought will delay herbicide activity and if prolonged, may result in poor weed control.
7. Do not use **CLEVER DF Herbicide** with additives, pesticides or fertilizers not specifically recommended on this label.
8. Allow 4 days between application of **CLEVER DF Herbicide** and any other chemical not recommended as a tank mix combination on this label.
9. **CLEVER DF Herbicide** must not be applied within 77 days of harvest of canary seed and wheat, within 60 days of harvest of canola and within 80 days of harvest of spring barley.
10. Spring barley treated with **CLEVER DF Herbicide** is NOT TO BE USED FOR HUMAN CONSUMPTION.

11. Canary seed treated with **CLEVER DF Herbicide** is NOT TO BE USED FOR HUMAN CONSUMPTION OR FED TO LIVESTOCK.
12. Apply using ground equipment only. DO NOT APPLY BY AIR.
13. Overspray or drift into important wildlife habitats such as shelterbelts, wetlands, woodlots, vegetated ditch, ponds and lake banks and other cover on the edges of fields should be avoided. A 10-metre buffer zone should be observed adjacent to aquatic habitats such as streams, ponds, rivers and lakes and to areas that drain into these habitats. When a tank mixture is used, consult the label of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.
14. Do not graze the treated crops or cut for hay within 77 days of application.
15. Grain and meal from treated canola can be fed to livestock. DO NOT graze or feed other portions of the treated canola to livestock.
16. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats.

Buffer Zones for the Protection of Terrestrial Habitats from Spray Drift of Quinclorac

Method of application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitats
Field Sprayer	Durum and spring wheat, canary seed	4
	Spring barley Canola - Brassica napus (conventional, Clearfield, LibertyLink and Roundup Ready varieties), Canola - Brassica juncea (conventional, Clearfield, LibertyLink and Roundup Ready varieties) and Tame mustard (brown and oriental)	3

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING

1. Thoroughly clean the sprayer prior to use. For appropriate cleaning instructions, refer to the label of the product sprayed previous to application of **CLEVER DF Herbicide**.
2. Fill the clean spray tank half full with clean water. Start agitation or by-pass system. Agitation should be running during the entire mixing procedure.
3. Add the correct amount of **CLEVER DF Herbicide** and agitate 2 to 3 minutes.

4. Add the correct amount of broadleaf herbicide, followed by **AVENGE 200-C** herbicide, if required. When mixing **CLEVER DF Herbicide** with **EXPRESS PACK**, **EXPRESS** herbicide must be completely in suspension in the spray tank prior to adding **2,4-D** herbicide.

NOTE: On repeat tank loads of either **EXPRESS PACK** or **REFINE EXTRA** herbicide, prepare an **EXPRESS**/water or **REFINE**/water slurry in a separate container with clean water before adding to the spray tank.

5. Add the correct amount of **MERGE** adjuvant and agitate 2 to 3 minutes.
6. Add remainder of water to the spray tank and maintain sufficient agitation during mixing and spraying to ensure a uniform spray mixture.
7. For sprayer clean-up, refer to the sprayer clean-up section.
8. Consult the broadleaf or **AVENGE 200-C** herbicide label for additional application instructions, use precautions and recropping information. **SPRAYER CLEAN-UP**

Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes, tomatoes and vegetables are particularly sensitive to **CLEVER DF Herbicide**. To avoid injury to subsequent crops other than wheat, the sprayer should be thoroughly cleaned immediately after use and prior to spraying other crops by performing the following steps:

1. Following spray application, drain any remaining spray solution, then flush the tank, boom and hoses with clean water until any visible residues are removed. (Repeat step 1, if necessary.) **DO NOT CLEAN SPRAYER NEAR DESIRABLE VEGETATION OR NEAR WELL OR WATER SOURCE.**
2. Completely fill spray tank with clean water while adding 1 litre of household ammonia (containing 3% ammonia) per 100 litres of water or a commercially licensed tank cleaner such as **FINNISH®**. Reduce the amount of ammonia added proportionally if higher concentrations (%) of ammonia are used. Flush the solution through the boom and nozzles and then add more water to completely refill the tank. Agitate the solution for at least 15 minutes and then flush the boom and nozzles until the spray tank is empty.
3. Remove the nozzles and screens and clean separately in a bucket containing a cleaning agent and water.
4. Repeat step 2.
5. Thoroughly rinse the tank with clean water and flush the water through the boom.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **CLEVER DF Herbicide** is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to **CLEVER DF Herbicide** and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **CLEVER DF herbicide** or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partners.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible, by an alternative herbicide from a different group.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

PRECAUTIONS

- 1 **KEEP OUT OF REACH OF CHILDREN.**
- 2 May irritate the skin. Avoid contact with the skin.
- 3 Potential skin sensitizer.
- 4 Wash thoroughly after handling and before eating, drinking or smoking.
- 5 Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
- 6 If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
- 7 Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
- 8 DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- 9 Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
- 10 Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

- 1 Store in original, tightly-closed container.
- 2 Do not ship or store near food, feed, seed or fertilizers.
- 3 Store in cool, dry, locked, well-ventilated area without floor drain.
- 4 Herbicides should be shipped or stored separately from other pesticides to avoid cross-

contamination.

- 5 Freezing will not harm **CLEVER DF Herbicide**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

- 1 Follow provincial instruction for any required cleaning of the container prior to its disposal.
- 2 Make the empty container unsuitable for further use.
- 3 Dispose of the container in accordance with provincial requirements.
- 4 For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

MERGE® is a registered trademark of BASF Canada Inc.

®All other products listed are registered trademarks of their respective companies.

CLEVER® Dry Flowable Herbicide

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass and suppression of annual and perennial sow-thistle in spring and durum wheat, spring barley and canary seed, canola, **Clearfield** canola quality *Brassica juncea*, and tame mustard (brown and oriental).

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENT: Quinclorac..... 75% DF

REGISTRATION NO. 31365 PEST CONTROL PRODUCTS ACT

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL COLLECT DAY OR NIGHT
1-613-966-6666**

**CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg

PRECAUTIONS

- 1 **KEEP OUT OF REACH OF CHILDREN.**
- 2 May irritate the skin. Avoid contact with the skin.
- 3 Potential skin sensitizer.
- 4 Wash thoroughly after handling and before eating, drinking or smoking.
- 5 Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
- 6 If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
- 7 Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
- 8 DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- 9 Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
- 10 Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
- 11 **As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.**

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

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Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

- 1 Store in original, tightly-closed container.
- 2 Do not ship or store near food, feed, seed or fertilizers.
- 3 Store in cool, dry, locked, well-ventilated area without floor drain.
- 4 Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
- 5 Freezing will not harm **CLEVER DF Herbicide**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

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NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the

directions on the label.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	32138
Product Name :	ENSURE DRY FLOWABLE HERBICIDE
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2016-01-05
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2021-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	QUINCLORAC 3,7-dichloroquinoline-8-carboxylic acid CASN = 84087-01-4 (GUAR = 75 % NOMINAL)

Date Modified: 2020-08-31

ENSURE® Dry Flowable Herbicide

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass in spring and durum wheat.

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA (INCLUDING THE PEACE RIVER REGION) ONLY

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENT: Quinclorac..... 75% DF

REGISTRATION NO. 32138

PEST CONTROL PRODUCTS ACT

IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT, CALL COLLECT, DAY OR NIGHT, 1-613-996-6666

**CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

Distributed by:

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg – 10 kg

GENERAL INFORMATION

ENSURE Dry Flowable Herbicide is a dry flowable herbicide for selective post-emergence control of green foxtail (including Group 1 and Group 3 resistant biotypes), volunteer flax, cleavers, and barnyard grass in hard red spring, Canadian prairie spring, durum, Canada Western extra strong wheats.

ENSURE Dry Flowable Herbicide is a herbicide with mainly systemic action. Uptake into the plant occurs through both the foliage and root system. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in inconsistent control of weeds growing underneath.

Visual symptoms of weed control of **ENSURE Dry Flowable Herbicide** may take up to two weeks following application to develop. These symptoms include initial twisting to stunting, reddening and chlorosis about 14 days followed by necrosis and death about 21 days after application. Even though **ENSURE Dry Flowable Herbicide** symptoms may take some time to develop, competition from the weeds treated with **ENSURE Dry Flowable Herbicide** is eliminated soon after application.

DIRECTIONS FOR USE

Application Rate and Timing for Wheat

DO NOT apply using aerial application equipment.

Apply **ENSURE Dry Flowable Herbicide** at 135-165 g/ha when weeds are small and actively growing. **ENSURE Dry Flowable Herbicide** will control the weeds at the timing detailed in **Table 1**. **ENSURE Dry Flowable Herbicide** can be applied to wheat at the maximum application rates and timing detailed in **Table 1**.

Use the 135 g/ha rate ONLY for control of volunteer flax, barnyard grass, cleavers, lighter infestations of green foxtail and *suppression of annual and perennial sow-thistle*. Use the higher rate of 165 g/ha for control of heavier infestations of green foxtail.

DO NOT apply **ENSURE Dry Flowable Herbicide** to any field more often than every second year. This practice must be respected in order to avoid potential injury to future rotational crops, to minimize the potential for carryover and accumulation of soil residues, and to reduce the selection pressure which could contribute to the development of resistant biotypes.

Early treatment of weeds with **ENSURE Dry Flowable Herbicide** is important to maximize crop yield potential through elimination of early weed competition. Some initial crop injury may be observed after application, but this is usually outgrown and should not affect crop yield.

TABLE 1: WEED APPLICATION TIMING TABLE

WEED	RANGE
Green foxtail	1 - 5 leaf (max 2 tillers)
Volunteer flax	1 - 8 cm.
Cleavers	1 - 3 whorls
Barnyard grass	1 - 5 leaf
CROP	
Wheat (spring and durum)	1 - 5 leaf

All leaf stages listed above refer to true leaves.

SPRAYING INSTRUCTIONS

Ground Application

Use sprayers equipped with standard flat fan pesticide nozzles with a spray volume of 100 L/ha at a constant pressure of 275-425 kPa. Tilt spray nozzles 45 degrees forward to ensure better coverage. The use of 50 mesh strainers and screens is recommended.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) fine classification. Boom height must be 60 cm or less above the crop or ground.

ADDITIVES

Always use **MERGE** adjuvant at 1.0% v/v for optimum performance of **ENSURE Dry Flowable Herbicide**.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

TANK MIX COMBINATIONS:

For the appropriate rate of **ENSURE Dry Flowable Herbicide**, refer to the Application Rate and Timing section of the label.

Broadleaf Weed Control

Although **ENSURE Dry Flowable Herbicide** provides control of several broadleaf weeds, a tank mix with a broadleaf compound is required to give broad spectrum broadleaf weed control in wheat.

For additional control of broadleaf weeds in wheat, **ENSURE Dry Flowable Herbicide** can be tank mixed with any of the broadleaf herbicides listed in **Table 2**. When tank mixing **ENSURE Dry Flowable Herbicide** with these broadleaf herbicides, a slight reduction in control of green foxtail may be observed. The level of green foxtail control may be improved by using the 165 g/ha rate of **ENSURE Dry Flowable Herbicide** in the tank mixture.

Refer to **Table 2** for appropriate use rates and timing of crop applications. Always refer to the broadleaf herbicide or tank mix partner label(s) for additional precautions, restrictions, use instructions and recropping information.

Wild Oat Control

For control of wild oats when populations are between 1-200 plants per square metre and certain broadleaf weeds, **ENSURE Dry Flowable Herbicide** can be tank mixed with **AVENGE 200-C** herbicide at the rate of 3.5 L/ha and one of the broadleaf herbicides as listed in **Table 2**. **USE ONLY ON SPRING WHEAT VARIETIES LISTED ON THE AVENGE 200-C HERBICIDE LABEL.**

AVENGE 200-C herbicide can cause some crop injury. Refer to the **Table 2** for appropriate use rates and timing of crop application. Always refer to both the **AVENGE 200-C** herbicide and the broadleaf herbicide label for additional precautions, restrictions and use instructions.

TABLE 2: TANK MIX OPTIONS FOR ENSURE DRY FLOWABLE HERBICIDE ON WHEAT

Crop	ENSURE Rate (g/ha)	Tank Mix Partner	Rate	Crop Stage	Weeds Controlled
Wheat (spring and durum)	135-165	Buctril M	1.0 L/ha	2-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on Buctril M label.
		2,4-D Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on 2,4-D Amine label.
		2,4-D Ester (assume 500 series)	0.840-1.1 L/ha	4-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on 2,4-D Ester label.
		MCPA Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on MCPA Amine label.
		MCPA Ester (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on MCPA Ester label.
		Refine Extra¹	20 g/ha	2-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on Refine Extra label.
		Express Pack¹ (Express + 2,4-D)	10 g/ha + 0.625 L/ha	3-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on Express Pack label.
Wheat (spring only)	135-165	Avenge 200-C	3.5 L/ha	1-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Wild oats as listed on Avenge 200-C label.
		Avenge 200-C + Buctril M	3.5 L/ha + 1.0 L/ha	2-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on Buctril M label. Wild oats as listed on Avenge 200-C label.
		Avenge 200-C + 2,4-D Ester (assume 500 series)	3.5 L/ha + 0.840-1.1 L/ha	4-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on 2,4-D Ester label. Wild oats as listed on Avenge 200-C label.
		Avenge 200-C + MCPA Ester (assume 500 series)	3.5 L/ha + 0.840-1.1 L/ha	3-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on MCPA Ester label. Wild oats as listed on Avenge 200-C label.
		Avenge 200-C + Refine Extra¹	3.5 L/ha + 20 g/ha	2-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on Refine Extra label. Wild oats as listed on Avenge 200-C label.

¹Addition of surfactants other than Merge adjuvant is not required.

Do not delay spraying broadleaf weeds if grassy weeds are not in the correct stage for treatment. If green foxtail, wild oats and broadleaf weeds are not in the correct stages for treatment, apply separate applications of each herbicide timed to control the required spectrum of weeds. Use **MERGE** adjuvant only with all tank mixtures.

RECROPPING

Due to the residual activity of **ENSURE Dry Flowable Herbicide** in the soil, land treated with **ENSURE Dry Flowable Herbicide** cannot be rotated to crops other than specified in **Table 3**. To avoid injury to rotational crops, the minimum recropping intervals in **Table 3** must be followed.

TABLE 3: MINIMUM RECROPPING INTERVALS

CROP	MINIMUM RECROPPING INTERVAL (Months)	NOTES
Wheat* (spring, durum) Spring barley*	0 0	These crops can be re-planted in the same season as ENSURE Dry Flowable Herbicide applications.
Field peas Sunflowers	10 10	
Flax Lentils	10 10	These crops and the crops listed above can be planted two years following application of ENSURE Dry Flowable Herbicide .

*In the event of crop failure, only spring or durum wheat or spring barley may be reseeded in fields treated with **ENSURE Dry Flowable Herbicide**.

ENSURE Dry Flowable Herbicide should not be used on land where potatoes or vegetables are part of the rotation.

The company recommends that a field bioassay (a test strip grown to maturity) be conducted the year before growing any crops other than those listed in **Table 3**.

On lighter soils with low organic matter or under dry conditions, some crop injury may occur particularly in flax and lentils but will not reduce yield. Under these conditions, the minimum recropping interval for flax and lentils should be extended by 12 months.

Refer to the broadleaf or AVENGE 200-C herbicide label for specific additional recropping restrictions.

RESTRICTIONS AND LIMITATIONS

1. Do not apply **ENSURE Dry Flowable Herbicide** when weather conditions may cause spray drift from treated areas to adjacent crops. Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes and vegetables will be injured by spray drift of **ENSURE Dry Flowable Herbicide**.
2. Do not treat any crops other than wheat.

3. Do not apply **ENSURE Dry Flowable Herbicide** to wheat under seeded to forages.
4. Do not apply **ENSURE Dry Flowable Herbicide** to wheat that has been subjected to stress from conditions such as frost, hail damage, flooding, drought, extended cold period, etc.
5. Rainfall within 6 hours after application may reduce effectiveness of spray.
6. When **ENSURE Dry Flowable Herbicide** is applied beyond the recommended growth stages, limited crop injury and/or unsatisfactory weed control may result.
7. Cool weather conditions or drought will delay **herbicide** activity and if prolonged, may result in poor weed control.
8. Do not use **ENSURE Dry Flowable Herbicide** with additives, pesticides or fertilizers not specifically recommended on this label.
9. Allow 4 days between application of **ENSURE Dry Flowable Herbicide** and any other chemical not recommended as a tank mix combination on this label.
10. **ENSURE Dry Flowable Herbicide** must not be applied within 77 days of harvest of wheat.
11. Apply using ground equipment only. DO NOT apply using aerial application equipment.
12. Overspray or drift into important wildlife habitats such as shelterbelts, wetlands, woodlots, vegetated ditch, ponds and lake banks and other cover on the edges of fields should be avoided. A 10-metre buffer zone should be observed adjacent to aquatic habitats such as streams, ponds, rivers and lakes and to areas that drain into these habitats. When a tank mixture is used, consult the label of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.
13. Do not graze the treated crops or cut for hay within 77 days of application.
14. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats.

Buffer Zones for the Protection of Terrestrial Habitats from Spray Drift of Quinclorac

Method of application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitats
Field Sprayer	Durum and spring wheat, canary seed	4
	Spring barley Canola - Brassica napus (conventional, Clearfield, LibertyLink and Roundup	3

	<p>Ready varieties),</p> <p>Canola - Brassica juncea (conventional, Clearfield, LibertyLink and Roundup Ready varieties) and Tame mustard (brown and oriental)</p>	
--	--	--

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING

1. Thoroughly clean the sprayer prior to use. For appropriate cleaning instructions, refer to the label of the product sprayed previous to application of **ENSURE Dry Flowable Herbicide**.
2. Fill the clean spray tank half full with clean water. Start agitation or by-pass system. Agitation should be running during the entire mixing procedure.
3. Add the correct amount of **ENSURE Dry Flowable Herbicide** and agitate 2 to 3 minutes.
4. Add the correct amount of broadleaf herbicide, followed by **AVENGE 200-C** herbicide, if required. When mixing **ENSURE Dry Flowable Herbicide** with **EXPRESS PACK**, **EXPRESS** herbicide must be completely in suspension in the spray tank prior to adding **2,4-D** herbicide.

NOTE: On repeat tank loads of either **EXPRESS PACK** or **REFINE EXTRA** herbicide, prepare an **EXPRESS**/water or **REFINE**/water slurry in a separate container with clean water before adding to the spray tank.

5. Add the correct amount of **MERGE** adjuvant and agitate 2 to 3 minutes.
6. Add remainder of water to the spray tank and maintain sufficient agitation during mixing and spraying to ensure a uniform spray mixture.
7. For sprayer clean-up, refer to the sprayer clean-up section.
8. Consult the broadleaf or **AVENGE 200-C** herbicide label for additional application instructions, use precautions and recropping information.

SPRAYER CLEAN-UP

Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes, tomatoes and vegetables are particularly sensitive to **ENSURE Dry Flowable Herbicide**. To avoid injury to subsequent crops other than wheat, the sprayer should be thoroughly cleaned immediately after use and prior to spraying other crops by performing the following steps:

1. Following spray application, drain any remaining spray solution, then flush the tank, boom and hoses with clean water until any visible residues are removed. (Repeat step 1, if necessary.) **DO NOT CLEAN SPRAYER NEAR DESIRABLE VEGETATION OR NEAR WELL OR WATER SOURCE.**

2. Completely fill spray tank with clean water while adding 1 litre of household ammonia (containing 3% ammonia) per 100 litres of water or a commercially licensed tank cleaner such as **FINNISH**[®]. Reduce the amount of ammonia added proportionally if higher concentrations (%) of ammonia are used. Flush the solution through the boom and nozzles and then add more water to completely refill the tank. Agitate the solution for at least 15 minutes and then flush the boom and nozzles until the spray tank is empty.
3. Remove the nozzles and screens and clean separately in a bucket containing a cleaning agent and water.
4. Repeat step 2.
5. Thoroughly rinse the tank with clean water and flush the water through the boom.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **ENSURE Dry Flowable Herbicide** is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to **ENSURE Dry Flowable Herbicide** and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **ENSURE Dry Flowable Herbicide** or other Group 4 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. May irritate the skin. Avoid contact with skin.
3. Potential Skin Sensitizer.

5. Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
8. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
9. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
10. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store in original, tightly-closed container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
5. Freezing will not harm **ENSURE Dry Flowable Herbicide**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

1. Follow provincial instruction for any required cleaning of the container prior to its disposal.
2. Make the empty container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

MERGE® is a registered trademark of BASF Canada Inc.

®All other products listed are registered trademarks of their respective companies.

ENSURE Dry Flowable Herbicide

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass in spring and durum wheat.

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA (INCLUDING THE PEACE RIVER REGION) ONLY

COMMERCIAL (AGRICULTURAL) GUARANTEE: Quinclorac 75% DF

REGISTRATION NO. 32138

PEST CONTROL PRODUCTS ACT

IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT, CALL COLLECT, DAY OR NIGHT, 1-613-996-6666

**CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

Distributed by:

Farmer's Business Network Canada, Inc. PO
Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. May irritate the skin. Avoid contact with skin.
3. Potential Skin Sensitizer
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
8. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
9. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
10. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
11. **As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.**

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store in original, tightly-closed container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
5. Freezing will not harm **ENSURE Dry Flowable Herbicide**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

1. Follow provincial instruction for any required cleaning of the container prior to its disposal.
2. Make the empty container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33087
Product Name :	DYNO GLYPHOSATE 360
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2018-05-03
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2023-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	GLYPHOSATE (PRESENT AS ISOPROPYLAMINE SALT OR ETHANOLAMINE SALT) isopropylammonium N-(phosphonomethyl)glycinate or 2-hydroxyethanaminium [(phosphonomethyl)amino]acetate CASN = (GUAR = 360 g/l NOMINAL)

Date Modified: 2020-08-31

DYNO GLYPHOSATE® 360

HERBICIDE
AGRICULTURAL AND INDUSTRIAL
Solution



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L

ACTIVE INGREDIENT: Glyphosate, 360 grams acid equivalent per litre present as the isopropylamine salt

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

EMERGENCY TELEPHONE NUMBER
IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL
CANUTEC FREE DAY OR NIGHT, 1-613-996-6666

Registration No. 33087 Pest Control Products Act

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

READ ENTIRE LABEL CAREFULLY BEFORE USE

DYNO GLYPHOSATE 360 is a non-selective, non-residual herbicide containing 360 g/L glyphosate (free acid) as isopropylamine salt, formulated as a water-soluble liquid. It is used for the control of most herbaceous weeds in agricultural and industrial sites. The product is absorbed through the foliage and translocated throughout the plant down to the root system. Visible symptoms such as gradual wilting and yellowing are usually obvious within 2 to 4 days of application to annual weeds, but may not be apparent for 7 to 10 days on perennial weeds.

GENERAL PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- MAY CAUSE EYE IRRITATION
- HARMFUL IF SWALLOWED
- AVOID CONTACT WITH EYES AND SKIN
- WASH HANDS AND EXPOSED SKIN BEFORE EATING, DRINKING, OR SMOKING, AND AFTER WORK

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S contact 1-888-931-2530 or www.croplife.ca.

FOR GOOD AGRICULTURAL PRACTICE:

- WEAR GLOVES, COVERALLS, AND EYE PROTECTION DURING MIXING, LOADING, CLEANUP, AND REPAIR PROCEDURES
- WASH SPLASHES FROM SKIN AND EYES IMMEDIATELY

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

EMERGENCY TELEPHONE NUMBER:

IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666 OR *666 FROM A CELL PHONE.

TOXICOLOGICAL INFORMATION

Treat Symptomatically.

ENVIRONMENTAL PRECAUTIONS

DYNO GLYPHOSATE 360 is toxic to aquatic organisms and non-target terrestrial plants. Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment. Avoid all drift or contact with vegetation for which treatment is not intended as damage or destruction may occur. Observe buffer zones specified under **Directions for Use**.

- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic, or plastic-lined containers. **DO NOT MIX, STORE, OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or the spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury if ignited by open flame, spark, welder's torch, lighted cigarette, or other ignition source.

STORAGE

KEEP AWAY FROM FOOD, DRINK, AND ANIMAL FEEDSTUFFS. KEEP ONLY IN ORIGINAL CONTAINER, TIGHTLY CLOSED.

IN CASE OF SPILL:

Contact the provincial regulatory authorities and Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) in case of spill, and for clean-up of spills. For environmental concerns call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

DISPOSAL OF CONTAINERS

RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location for the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsing to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the distributor and the provincial regulatory agency in case of spill, and for clean-up of spills.

RETURNABLE CONTAINERS

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

RETURNABLE-REFILLABLE CONTAINERS

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

NOTICE TO USER:

This control product is to be used only in accordance with the directions on this label. It is an offense under the *Pest Control Products Act* to use a control product in a way that is inconsistent with the directions on the label.

DYNO GLYPHOSATE[®] 360

**HERBICIDE
AGRICULTURAL AND INDUSTRIAL
Solution**



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L

ACTIVE INGREDIENT: Glyphosate 360 g/L grams acid equivalent per litre present as the isopropylamine salt

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

EMERGENCY TELEPHONE NUMBER

IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL
CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666

Registration No. 33087 Pest Control Products Act

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

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READ ENTIRE LABEL CAREFULLY BEFORE USE

DYNO GLYPHOSATE 360 is a non-selective, non-residual herbicide containing 360 g/L glyphosate (free acid) as isopropylamine salt, formulated as a water-soluble liquid. It is used for the control of most herbaceous weeds in agricultural and industrial sites. The product is absorbed through the foliage and translocated throughout the plant down to the root system. Visible symptoms such as gradual wilting and yellowing are usually obvious within 2 to 4 days of application to annual weeds, but may not be apparent for 7 to 10 days on perennial weeds.

GENERAL PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- MAY CAUSE EYE IRRITATION
- HARMFUL IF SWALLOWED
- AVOID CONTACT WITH EYES AND SKIN
- WASH HANDS AND EXPOSED SKIN BEFORE EATING, DRINKING, OR SMOKING, AND AFTER WORK

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S contact 1-888-931-2530 or www.croplife.ca.

FOR GOOD AGRICULTURAL PRACTICE:

- WEAR GLOVES, COVERALLS, AND EYE PROTECTION DURING MIXING, LOADING, CLEANUP, AND REPAIR PROCEDURES
- WASH SPLASHES FROM SKIN AND EYES IMMEDIATELY

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN CONTACT WITH EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

EMERGENCY TELEPHONE NUMBER: IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666 OR *666 FROM A CELL PHONE.

TOXICOLOGICAL INFORMATION

Treat Symptomatically.

ENVIRONMENTAL HAZARDS

DYNO GLYPHOSATE 360 is toxic to aquatic organisms and non-target terrestrial plants. Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment. Avoid all drift or contact with vegetation for which treatment is not intended as damage or destruction may occur. Observe buffer zones specified under **Directions for Use**.

- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic, or plastic-lined containers. **DO NOT MIX, STORE, OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or the spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury if ignited by open flame, spark, welder's torch, lighted cigarette, or other ignition source.

STORAGE

KEEP AWAY FROM FOOD, DRINK, AND ANIMAL FEEDSTUFFS. KEEP ONLY IN ORIGINAL CONTAINER, TIGHTLY CLOSED.

IN CASE OF SPILL:

Contact the provincial regulatory authorities and Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) in case of spill, and for clean-up of spills. For environmental concerns call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

DISPOSAL OF CONTAINERS

RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location for the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsing to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the distributor and the provincial regulatory agency in case of spill, and for clean-up of spills.

RETURNABLE CONTAINERS

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

RETURNABLE-REFILLABLE CONTAINERS

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

NOTICE TO USER:

This control product is to be used only in accordance with the directions on this label. It is an offense under the *Pest Control Products Act* to use a control product in a way that is inconsistent with the directions on the label.

PRECAUTIONS

Avoid contact with desirable vegetation by direct application or spray drift as severe injury or destruction may result. Avoid drift or overspray to non-target vegetation and wildlife habitats.

DO NOT USE IN GREENHOUSES.

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

The restricted entry interval is 12 hours after application for all agricultural uses.

Drain and clean sprayer and parts immediately after using this product.

Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Reduced results may occur if water which contains suspended soil is used; examples are water from ponds and ditches. Poor control may also occur when treating weeds heavily covered with dust.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

GENERAL PRODUCT INFORMATION

DYNO GLYPHOSATE 360 is a water-soluble herbicide for non-selective weed control. DYNO GLYPHOSATE 360 is applied as a foliar spray for the control of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

DYNO GLYPHOSATE 360 moves through the plant from the point of foliage contact into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds effects may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down the activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant, which advances to complete browning of above ground growth and deterioration of underground plant parts.

DYNO GLYPHOSATE 360 does not provide residual weed control. For subsequent residual weed control, apply a registered residual herbicide. Read and carefully observe cautionary statements and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. **Do not apply if rainfall is forecast for the time of application.**

DIRECTIONS FOR USE

GENERAL APPLICATION NOTES:

Results are best when weeds are actively growing. If weeds have been mowed, allow to return to recommended growth stage. Delay application until vegetation has emerged to the stage described for the control of such vegetation under the ANNUAL and PERENNIAL WEED CONTROL charts of this booklet to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or rootstocks of perennials will not be affected by the spray and will continue to grow. For this reason, best control of most perennial weeds is obtained when the treatment is made at the late growth stages approaching maturity.

Always use higher rates of DYNO GLYPHOSATE 360 per hectare within the recommended range when weed growth is heavy or dense or weeds are growing in an undisturbed (uncultivated) area. **Do not treat weeds under poor growing conditions such as drought, flooding, frost, high temperatures, disease or insect damage as reduced weed control may result.** Reduced results may also occur when treating weeds heavily covered with dust. Heavy rainfall immediately after application may wash the product off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

DYNO GLYPHOSATE 360 should only be mixed with products recommended on this label. Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

TANK MIXES

DYNO GLYPHOSATE 360 may be used with the following surfactants: Agral 90[®], Ag-Surf[®], Companion[™]. See charts on **TANK MIXES FOR ANNUAL** and for **PERENNIAL WEED CONTROL**.

DYNO GLYPHOSATE 360 may be used with the following herbicides:

Banvel[®], Oracle[®], Pardner[®], Pursuit[®], 2,4-D low volatile ester or amine formulations: See section on MINIMUM AND ZERO TILLAGE TANK MIXES.

Princep Nine-T[®], Simadex[®]: See section on **TREE, VINE, AND BERRY CROPS**.

DyCler 480[®], Simazine 80W[®], Simadex[®] Flowable, 2,4-D amine: See section on **NONCROPLAND AND INDUSTRIAL USES**.

Always refer to the surfactant and herbicide labels for specific instructions regarding the use of that product.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Trade Name

Agral 90[®], DyCler[®], Princep Nine-T[®]
Ag-Surf[®]
Banvel[®], Pursuit[®]
Companion[™]
Pardner[®], Simadex[®]
Oracle

Trademark Owners

Syngenta
IPCO
BASF
Dow Chemical Co.
Bayer CropScience
Gharda USA, Inc

VEGETATION CONTROLLED

DYNO GLYPHOSATE 360 controls many annual and perennial grasses, broadleaf weeds and woody brush and trees when applied as recommended and under the conditions described. For information on how to control specific weeds, including herbicide rate, refer to the ANNUAL WEED CONTROL and PERENNIAL WEED CONTROL charts of this label. The following is a partial list of the weeds controlled:

Table 1: Annual weed control by DYNO GLYPHOSATE 360®

Weed Type: Annual Weeds	Genus and Species
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Broomcorn millet	<i>Panicum miliaceum</i>
Cheatgrass	<i>Bromus tectorum</i>
Chickweed	<i>Stellaria media</i>
Cocklebur	<i>Xanthium strumarium</i>
Corn Spurry	<i>Spergula arvensis</i>
Common Lamb's quarters	<i>Chenopodium album</i>
Cow Cockle	<i>Saponaria vaccaria</i>
Dodder	<i>Cuscuta spp.</i>
Downy brome	<i>Bromus tectorum</i>
Eastern black flowering nightshade	<i>Solanum ptycanthum</i>
Fall panicgrass	<i>Panicum dichotomiflorum</i>
Fleabane (Canada)	<i>Erigeron canadensis</i>
Flixweed	<i>Descurainia sophia</i>
Giant foxtail	<i>Setaria faberii</i>
Green foxtail	<i>Setaria viridis</i>
Green Smartweed	<i>Polygonum scabrum</i>
Hairy crabgrass	<i>Digitaria sanguinalis</i>
Hempnettle	<i>Galeopsis tetrahit</i>
Kochia	<i>Kochia scoparia</i>
Lady's thumb	<i>Polygonum persicaria</i>
Narrow-leaf hawk's beard	<i>Crepis tectorum</i>
Narrow-leaf vetch	<i>Vicia angustifolia</i>
Night flowering catchfly	<i>Silene noctiflora</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Persian darnel	<i>Lolium persicum</i>
Prickly lettuce	<i>Lactuca scariola</i>
Ragweed (common)	<i>Ambrosia artemisiifolia</i>

Weed Type: Annual Weeds	Genus and Species
Redroot Pigweed	<i>Amaranthus retroflexus</i>
Russian thistle	<i>Salsola pestifier</i>
Shepherd's purse	<i>Capsella bursa-pastoris</i>
Smooth crabgrass	<i>Digitaria ischaemum</i>
Smooth Pigweed	<i>Amaranthus hybridus</i>
Sowthistle (annual)	<i>Sonchus oleraceus</i>
Stinkweed	<i>Thlaspi arvense</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Volunteer barley	<i>Hordeum spp.</i>
Volunteer canola	<i>Brassica spp.</i>
Volunteer corn	<i>Zea mays</i>
Volunteer flax	<i>Linum spp.</i>
Volunteer wheat	<i>Triticum spp.</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
Wild mustard	<i>Sinapsis arvensis</i>
Wild oats	<i>Avena fatua</i>
Wild tomato	<i>Solanum triflorum</i>
Yellow foxtail	<i>Setaria glauca</i>

Table 2: Perennial weeds control by DYNO GLYPHOSATE 360®

Weed Type: Perennial Weeds	Genus and Species
Alfalfa	<i>Medicago sativa</i>
Bluegrass (Canada)	<i>Poa compressa</i>
Bluegrass (Kentucky)	<i>Poa pratensis</i>
Brome grass (smooth)	<i>Bromus inermis</i>
Canada thistle	<i>Cirsium arvense</i>
Common cattail	<i>Typha latifolia</i>
Common milkweed	<i>Asclepias syriaca</i>
Cottontop	<i>Eriophorum chamissonis</i>
Curled dock	<i>Rumex crispus</i>
Dandelion	<i>Taraxacum officinale</i>
Foxtail barley	<i>Hordeum jubatum</i>
Hemp dogbane	<i>Apocynum cannabinum</i>
Hoary cress	<i>Cardaria draba</i>
Japanese knotweed	<i>Polygonum cuspidatum</i>
Perennial sowthistle	<i>Sonchus arvensis</i>
Poison ivy	<i>Rhus radicans</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Quackgrass	<i>Elytrigia repens</i>
Toad flax	<i>Linaria vulgaris</i>
Wormwood (Absinth)	<i>Artemisia absinthium</i>
Yellow Nutsedge	<i>Cyperus esculentus</i>

Table 3: Woody weeds, bush and tree control by DYNO GLYPHOSATE 360®

Weed Type: Bush and Trees	Genus and Species
Alder	<i>Alnus spp.</i>
Birch	<i>Betula spp.</i>
Broadleaf meadowsweet	<i>Spiraea latifolia</i>
Canadian rhododendron	<i>Rhododendron canadense</i>
Cedar	<i>Thuja spp.</i>
Cherry	<i>Prunus spp.</i>
Douglas fir	<i>Pseudotsuga spp.</i>
Hemlock	<i>Tsuga spp.</i>
Maple	<i>Acer spp.</i>
Mountain-fly honeysuckle	<i>Lonicera villosa</i>
Pine	<i>Pinus spp.</i>
Poplar	<i>Populus spp.</i>
Raspberry	<i>Rubus spp.</i>
Salmonberry	<i>Rubus spectabilis</i>
Sheep laurel	<i>Kalmia angustifolia</i>
Snowberry (western)	<i>Symphoricarpos occidentalis</i>
Sweet fern	<i>Comptonia peregrina</i>
Willow	<i>Salix spp.</i>
Withrod	<i>Viburnum cassinoides</i>

Resistance Management Recommendations:

For resistance management, DYNO GLYPHOSATE 360[®] Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to DYNO GLYPHOSATE 360[®] Herbicide and other Group 9 herbicides. The resistance biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of DYNO GLYPHOSATE 360[®] Herbicide or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance contact Farmer's Business Network Canada, Inc. at 1-844-200-3276.

APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS

GROUND BOOM AND BOOMLESS SPRAYERS

Mixing: For field or industrial type sprayers, fill the spray tank with one half the required amount of water. Add the proper amount of DYNO GLYPHOSATE 360[®] herbicide (see appropriate chart) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent any excessive foaming. Remove the hose from the tank immediately after filling to avoid back siphoning into water source (a one-way valve should be installed to prevent back siphoning). Use of mechanical agitators may cause excessive foaming. By-pass lines should terminate at the bottom of the tank.

Application: Use flat fan nozzles in boom sprayers. To control perennial weeds, woody brush, and trees as listed, apply DYNO GLYPHOSATE 360[®] in 50 to 300 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure. To control annual weeds as listed, apply DYNO GLYPHOSATE 360[®] in 50 L to 100 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure.

KNAPSACK SPRAYERS, HAND HELD & HIGH-VOLUME EQUIPMENT

High volume spraying utilizes handguns or other suitable nozzle arrangements to apply a directed spray to weeds, woody brush, and trees. Use coarse sprays only.

Mixing: Mix the proper amount of DYNO GLYPHOSATE 360 with water in a large container. Fill the sprayer with the mixed solution. Unless otherwise stated, make a 1% solution of DYNO GLYPHOSATE 360 in water (1 L of DYNO GLYPHOSATE 360 in 100 L of water). A 2% solution (2 L of DYNO GLYPHOSATE 360 in 100 L of water) should be used on harder to control perennials.

Application: Spray coverage should be uniform and complete. Apply on a spray-to-wet basis. Do not spray to the point of runoff. Hand gun application should be properly directed to avoid spraying desirable plants.

MIST BLOWERS

For control of woody weeds, brush, and trees listed in the VEGETATION CONTROLLED list, use the recommended rate of DYNO GLYPHOSATE 360 in at least 200 L of water per hectare.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

WIPER, WICK AND ROLLER EQUIPMENT

These applicators apply DYNO GLYPHOSATE 360 solution directly onto the weeds by contacting the weed with an absorbent material containing the herbicide solution. Weeds should be a minimum of 15 cm above the desired vegetation to prevent contact of DYNO GLYPHOSATE 360 with the desired vegetation.

Mixing: Mix the proper amount of DYNO GLYPHOSATE 360 with water in a large container. Use this mixed solution in the wiper, wick or roller equipment.

Application: These applicators can be used to control weeds in:

- Industrial sites, tree plantings, and non-crop sites as specified.
- The following agricultural crops:
 - Apple, cherry, peach, pear and plum orchards, grape vineyards, soybeans, dry beans, strawberries, and cranberries (note: applications must be made before initial pod set in soybeans and dry beans).

The applicator should be adjusted so that the contact point of the wiper, roller, or wick is at least 5 cm above the desirable vegetation. Droplets or foam of the DYNO GLYPHOSATE 360 solution settling on desirable vegetation may result in discoloration, stunting or destruction. Best results are obtained when more of the weed is exposed to the herbicide solution. It is recommended that two applications be made in opposite directions, if possible. Weeds not contacted will not be affected. This may occur in dense clumps, severe infestation, or when the height of the weeds varies so that not all weeds are contacted. In these instances, a repeat treatment may be necessary.

AVOID CONTACT WITH DESIRABLE VEGETATION

Wiper, Wick, Roller Application Notes:

- Maintain wiper equipment in good operating condition. Care must be taken with all types of wipers to ensure that the absorbent material does not become oversaturated, causing the herbicide to drip onto desirable vegetation.
- Avoid leakage or dripping onto desirable vegetation.
- Adjust height of wiper applicator to ensure proper contact with weeds.
- Keep wiping surfaces clean.
- Maintain recommended roller speed on roller applicators while in use.
- DO NOT use wiper equipment when weeds are wet.
- DO NOT operate equipment at ground speeds less than 4 or greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to ensure good coverage of weeds.
- Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.
- Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended DYN0 GLYPHOSATE 360 herbicide solution directly to the weed.
- Mix only the amount of solution to be used during a one-day period, as reduced activity may result from use of leftover solution. Thoroughly drain and clean all equipment immediately after use.

AERIAL APPLICATION

Aerial Application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h (preharvest) or 8 km/h (rights-of-way) at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572,1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Directions for Use (for additional information see section on Aerial Application for Industrial Rights-of-Way ONLY)

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Aerial Use Precautions

Apply only when weather conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following: Volume: Apply the recommended rate in a spray volume of 30-100 L/ha.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of DYNO GLYPHOSATE 360 accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

BUFFER ZONES:

Use of the following spray methods or equipment DO NOT require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies). Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Agricultural, forestry and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
		Aquatic habitats	Terrestrial habitats
Agricultural crop system and ground boom application method			
Pre-seeding applications for cranberry, filberts, hazelnut and all other crops. Established pasture and summer fallow.	1	1	1
Filberts or hazelnut	4	1	1
Strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)	2	1	2
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, forage grasses and legume including seed production	3	1	2
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)	4	1	2
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes	3	1	3
Agricultural crop system and airblast application method (including mist blower)			
Pasture	1	20	30
Turfgrass (Prior to establishment or renovation)	2	25	35
Forest plant system and ground boom application method			
<i>Forest and woodlands > 500 ha</i> Site preparation	2	1	NR
Forest plant system and airblast application method (including mist blower)			
<i>Forest and woodlands > 500 ha</i> Site preparation	2	1	NR
Non-cropland system and ground boom application method			
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	3*
Non-cropland system and airblast application method (including mist blower)			
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	30*

Agricultural crop system and aerial application method	Wing type			
Crops for pre-seeding treatments only	Fixed and rotary wing	1	15	20
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30
Forage grasses and legume including seed production	Fixed and rotary wing	1	20	40
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40
Summer fallow	Fixed wing	1	20	45
	Rotary wing	1	20	40
Pasture	Fixed wing	1	30	70
	Rotary wing	1	30	55
Forestry system and aerial application method				
<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	10	NR
	Rotary wing	2	1	NR
<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	5	NR
	Rotary wing	2	1	NR
Non-cropland system and aerial application method				
Non-crop land and industrial uses: rights-of way areas only	Fixed wing	3	100	NR
	Rotary wing	3	60	NR

* Buffer zones for the protection of terrestrial habitats are not required for forestry uses or for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

NR = Not Required

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

AGRICULTURAL AND CROPLAND USES

The following are use situations for DYNO GLYPHOSATE 360 herbicide. The type of vegetation present and the use situation will dictate the choice of application equipment. Information on the equipment selected to apply DYNO GLYPHOSATE 360 can be found in the APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section. Use rates can then be selected from the ANNUAL and PERENNIAL WEED CONTROL charts.

PREPLANT TREATMENT

DYNO GLYPHOSATE 360 can be applied prior to planting of all crops for control of emerged weeds listed on the label. Ensure weeds are at the recommended growth stage at the time of application. Apply BEFORE seeding or transplanting crop.

SUMMER FALLOW

DYNO GLYPHOSATE 360 may be applied in summer fallow to control weeds listed on the label. Ensure weeds are at the recommended growth stage and actively growing at the time of application. Reduced control may result if weeds are drought stressed. Repeat treatments may be necessary to control later germinating weeds.

MINIMUM AND ZERO TILLAGE SYSTEMS (ALL FIELD CROPS INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES AND CORN)

DYNO GLYPHOSATE 360 may be applied before or after seeding but before crop emerges for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Weeds should be treated at the growth stage according to the ANNUAL and PERENNIAL WEED CONTROL charts. **DO NOT APPLY AFTER CROP EMERGENCE.**

Since DYNO GLYPHOSATE 360 does not provide residual control, application too far in advance of seeding may allow weeds to germinate between application and crop emergence.

MINIMUM AND ZERO TILLAGE TANK MIXES

DYNO GLYPHOSATE 360 Herbicide plus Pardner[®] (bromoxynil) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley, and oats. See chart on TANK MIXES for ANNUAL WEED CONTROL.

DYNO GLYPHOSATE 360 Herbicide plus Pursuit[®] can be applied before or after seeding, but prior to crop emergence in soybeans. DYNO GLYPHOSATE 360 herbicide will control emerged weeds listed on this label when applied as directed (see VEGETATION CONTROLLED lists). Pursuit[®] will control weeds germinating from seed. Add the recommended rates of both products in 100 L of water/ha following the instructions on the Pursuit[®] herbicide label.

Refer to the Pursuit[®] label for further information on weeds controlled, application directions, and use precautions. Only SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT and WINTER WHEAT may be planted the season following a Pursuit[®] application. Winter wheat may be planted the same year as a Pursuit[®] application to soybeans, but not earlier than 120 days after the application.

DO NOT APPLY AFTER CROP EMERGENCE.

**Table 4: DYNO GLYPHOSATE 360® TANK MIXES for ANNUAL WEED CONTROL:
Summer fallow & minimum tillage systems treatment rates**

TANK MIXTURES	RATE L/ha	WEEDS CONCONTROLLED++	COMMENTS: (Apply in 50-100 L/ha water; add 350 mL/ha surfactant)
DYNO GLYPHOSATE 360 + Banvel® or Oracle®	0.75 - 1.0 + 0.29	Volunteer cereals, wild oats, green foxtail, volunteer canola (rapeseed), wild mustard, flixweed*, lamb's quarters, lady's thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *DYNO GLYPHOSATE 360 applied at 1.0 L/ha rate only. **Suppression only. See other tank mixtures for control options.
DYNO GLYPHOSATE 360 + Pardner®	0.75 - 1.0 + 1.25	Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's thumb, stinkweed, wild buckwheat*, redroot pigweed**, kochia**, wild oats**	This tank mix for summer fallow use; and prior to planting wheat, oats, and barley in minimum tillage systems. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use DYNO GLYPHOSATE 360 at 1.0L/ha rate for wild buckwheat control. **1.0L/ha rate, suppression only. See other tank mixtures for control options.
DYNO GLYPHOSATE 360® + 2,4-D#	0.75 - 1.0 + 1.2	Volunteer cereals, wild oats*, green foxtail*, volunteer canola (rapeseed), wild mustard, Flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters**, Russian thistle**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use DYNO GLYPHOSATE 360 at 1.0 L/ha rate only for wild oat and green foxtail control. **Suppression only. See other tank mixtures for control options.

#0.56 kg ai/ha of 2,4-D. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

++For foxtail barley suppression, refer to chart on ANNUAL WEED CONTROL.

NOTE: All DYNO GLYPHOSATE 360 herbicide tank mixtures for annual weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf® and Companion™. Surfactant should be added at a rate of 350 mL per hectare in 50-100 L of clean water.

Table 5: DYNO GLYPHOSATE 360® tank mixtures for perennial weed control summer fallow or fall stubble

TANK MIXTURES	RATE L/ha	WEEDS CONTROLLED	COMMENTS:
DYNO GLYPHOSATE 360® + Banvel® or Oracle®	1.7 L/ha + 1.25 L/ha	Canada thistle, perennial sow thistle	Apply in 100-200 L/ha water; add 350 mL/ha surfactant Summer fallow: Cultivate in the spring and apply when majority of thistles are 15 to 25 cm tall, and before the bud stage. Cultivate 3 weeks after application. Fall stubble: Apply to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: All DYNO GLYPHOSATE 360® herbicide tank mixtures for perennial weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf®, or Companion™.

Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mix.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

FALL STUBBLE

Apply in the fall as a postharvest stubble treatment for control of perennial weeds including quackgrass and Canada thistle. Allow the Canada thistle and quackgrass to regrow to 20-25 cm tall. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frost prior to treatment may decrease control.

SPOT TREATMENT (IN CROP)

DYNO GLYPHOSATE 360 may be applied for the control of Canada thistle, quackgrass and other perennial weeds in forage crops, barley, wheat, oats, soybeans and legumes, including seed production. Treatments may be made up to heading of small grain, initial pod set on soybeans and emergence of seed heads. Avoid drift beyond the treated area.

Application can be made using a boom sprayer, knapsack, or high-volume equipment (see APPLICATION AND MIXING INSTRUCTIONS section). Applications should be made using the same growth stages as listed in the ANNUAL and PERENNIAL WEED CONTROL charts. Or, use a 1% solution for annul weeds and quackgrass and a 2% solution for other perennial weeds (a 1% solution equals 1 litre DYNO GLYPHOSATE 360® herbicide in 100 litres of spray solution). The 1% and 2% solutions should be applied to wet, but not to run off.

NOTE: THE CROP IN THE TREATED AREA WILL BE KILLED BY THE TREATMENT.

DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS BEFORE GRAZING IN, OR HARVESTING TREATED AREAS AS FORAGES.

FORAGE GRASSES AND LEGUMES

Use DYN0 GLYPHOSATE 360[®] to control or suppress existing vegetation prior to emergence of legumes and grasses. If legumes and grasses are underseeded with a cover crop, DYN0 GLYPHOSATE 360[®] must be applied prior to planting any cover crop.

PASTURE RENOVATION

DYN0 GLYPHOSATE 360[®] may be used to control or suppress existing vegetation for zero tillage seeding of legume or grass pasture into established sod for renovation. Weed growth should be at least 20 cm high and most weed seeds should have germinated at the time of spraying.

FORAGE SEED PRODUCTION (FOR SPOT TREATMENT)

DYN0 GLYPHOSATE 360[®] may be applied as a spot treatment for control of perennial weeds such as quackgrass and Canada thistle in seed fields. Apply to weeds at least 20-25 cm in height but before emergence of seed head.

The crop in the treated area will be killed. For this reason, take particular care to avoid drift outside the treated area.

PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, DANDELION, TOADFLAX and MILKWEED; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, dandelion, toadflax and common milkweed, and season-long control of perennial sow thistle, DYN0 GLYPHOSATE 360[®] can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linolenic acid varieties), lentils, peas, dry beans and soybeans. DO NOT apply to crops grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tilling may interfere with harvest operations. **EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN THE ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.**

DYN0 GLYPHOSATE 360[®] should be applied pre-harvest at 2.5 L/ha in 50 to 100 L/ha of clean water, by GROUND APPLICATION ONLY.

When to Apply: Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS chart for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7-14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Use Precautions: Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g. sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife, should be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

*** DO NOT apply using aerial application equipment ***

Table 6: Guidelines for timing of preharvest applications

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL INDICATORS
WHEAT, BARLEY, OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including glyphosate tolerant varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linolenic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour, pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

Refer to the general guidelines for aerial application as well as specific instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION

FOR PRAIRIE PROVINCES ONLY (Including INTERIOR AND PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators, and aerial application services, approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patternation) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 - 600 microns) or very coarse (600 - 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a DYN0 GLYPHOSATE 360[®] aerial application training course.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24-month period. All pilots who do not meet the minimum experience standard must work under the direct daily supervision of a qualified pilot.

DIRECTIONS FOR USE

DYN0 GLYPHOSATE 360[®] may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. DYN0 GLYPHOSATE 360[®] can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linoleic acid varieties), lentils, peas, dry beans, and soybeans. DO NOT apply to any crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

DYN0 GLYPHOSATE 360[®] should be applied at 2.5 L/ha in 20 - 50 L/ha of clean water with

aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS for visible indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 - 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Table 7: Guidelines for timing of preharvest applications (restricted use)

CROP(S)	PERCENT GRAIN MOISTURE	VISIBLE SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linoleic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
FORAGES	Not applicable	Normal stage for forage harvesting.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS (including glyphosate tolerant varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.

USE PRECAUTIONS:

AVOID DRIFT ON TO IMPORTANT WILDLIFE HABITATS. EXTREME CARE MUST BE TAKEN WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS.

Apply only in wind conditions in compliance with local and/or provincial regulations. Do not apply when other climatic conditions, including lesser wind velocities, will allow significant drift to occur.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that disperse spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. See # 1 of the NATURE OF RESTRICTION section for additional details.

Do not overspray or allow drift on to bodies of water, wetlands† and/or wetland vegetation (e.g., sloughs, swamps, bogs, marshes, potholes), shelterbelts, woodlots and other cover on the edge of fields.

IN ORDER TO REDUCE THE DRIFT HAZARD TO NON-TARGET PLANTS AND AQUATIC VEGETATION IN THE HABITATS LISTED ABOVE, DO NOT APPLY WITHIN 100 METRES OF THE EDGE OF ANY OF THESE HABITATS. Do not apply directly to roadside ditches, or apply under conditions that would favour drift into roadside ditches.

†A wetland is any land where the water table stands at or above the land surface for at least part of the year, and contains vegetation associated with wetlands such as bulrushes, sedges, cattails, etc.

Ensure uniform application - To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills.

PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.

The maintenance of an organic coating (paint) which meets aerospace specification MILC-38412 may prevent corrosion.

TREE, VINE, and BERRY CROPS

DYNO GLYPHOSATE 360[®] controls annual and perennial weeds in established vineyards or orchards, in blueberry, cranberry, and strawberry, or for site preparation prior to transplanting tree or vine crops. See chart on WEED CONTROL IN TREE, BERRY, and VINE CROPS for rate and time of application information.

This product does not provide residual or pre-emergent weed control. Repeat applications may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. For subsequent weed control, follow a program using residual herbicides or use repeated applications of DYNO GLYPHOSATE 360[®].

DO NOT APPLY MORE THAN 35 L OF DYNO GLYPHOSATE 360[®] HERBICIDE PER HECTARE PER YEAR. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF THE HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURE BROWN BARK CAN RESULT IN SERIOUS CROPDAMAGE.

Allow annual and perennial weeds that have been mowed, grazed, or cut, time to regrow to recommended growth stage for treatment.

Applications may be made with boom sprayer, shielded sprayers, hand held and high-volume orchard guns, or with wiper, wick, or roller equipment (orchards, vineyards, cranberry and strawberry only).

TREE PLANTING - Shelterbelts, Nursery Stock, Woody Ornamentals

DYNO GLYPHOSATE 360[®] may be applied to control annual and perennial weeds listed on this label. This may be used for site preparation prior to establishing plantations, or as a post directed spray in established plantations of the following species:

Table 8: Trees where DYNO GLYPHOSATE 360[®] may be applied to control

Deciduous Trees		Coniferous Trees	
Name	Genus and Species	Name	Genus and Species
Ash	<i>Fraxinus spp.</i>	Fir	<i>Abies spp.</i>
Caragana	<i>Caragana spp.</i>	Juniper	<i>Juniperus spp.</i>
Cherry	<i>Prunus spp.</i>	Pine	<i>Pinus spp.</i>
Elm	<i>Ulmus spp.</i>	Spruce	<i>Picea spp.</i>
Lilac	<i>Syringa spp.</i>	Yew	<i>Taxus spp.</i>
Maple	<i>Acer spp.</i>		
Mountain ash	<i>Sorbus americana</i>		
Poplar	<i>Populus spp.</i>		
Russian olive	<i>Elaeagnus spp.</i>		
Willow	<i>Salix spp.</i>		

SPRAY MAY CONTACT MATURE BROWN BARK ONLY.

Avoid contact with non-target plants, foliage, or suckers of established plantations.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

GLYPHOSATE TOLERANT CROPS

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA (I.E., VARIETIES WITH THE ROUNDUP[®] READY GENE).

WARNING: APPLY DYNO GLYPHOSATE 360[®] HERBICIDE ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to the **GENERAL PRODUCT INFORMATION, GENERAL APPLICATION NOTES,** and **APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS** sections.
- Apply DYNO GLYPHOSATE 360[®] herbicide in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visible yellowing may occur when DYNO GLYPHOSATE 360[®] herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

*** DO NOT apply using aerial application equipment ***

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

Table 9: Weed control in canola with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.825 – 1.875	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, wild buckwheat*, shepherd's purse*, cow cockle*, night-flowering catchfly*, smartweed*, storksbill*, flixweed*, narrow-leaf hawk's beard*, roundleaf, mallow* * *</p> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sowthistle, dandelion</p> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sowthistle* * * *</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure. Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use the 1.25 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd's purse, cow cockle and night-flowering catchfly at the 1-3 leaf stage of the crop or for control of smartweed at the 4-6 leaf stage.</p> <p>** A single application at the 1.25 L/ha rate is required. *** Sequential applications at the 1.25 L/ha rate are required. **** Sequential applications at the 1.25 L/ha rate are required or a single application of 1.875 L/ha.</p> <ul style="list-style-type: none"> • For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. • Maximum 2.5 L/ha is allowed for the post emergence use.

TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in glyphosate tolerant canola (i.e., varieties with the Roundup Ready Gene), apply a tank mixture of 0.28 L/ha of Lontrel® 360 with 1.25 L/ha of DYNO GLYPHOSATE 360® Herbicide, in 100 litres of water per hectare. Apply when canola is in the 2-6 leaf stage. Refer to the Lontrel® 360 and to the DYNO GLYPHOSATE 360® Herbicide labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

Lontrel® is a registered trademark of Dow AgroSciences LLC.

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

WARNING: APPLY DYNO GLYPHOSATE 360® HERBICIDE ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

*** DO NOT apply using aerial application equipment ***

Table 10: Weed control in soybean with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Use 100-200 L/ha water volumes)
2.5	First trifoliate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's thumb, Pennsylvania smartweed, eastern black flowering nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, milkweed*, yellow nutsedge*, fall panicum, wild proso millet	A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. This second application must be made no later than the flowering stage of the soybean. *Suppression only
2.5 (x2)	First trifoliate leaf stage through flowering	Perennial sowthistle, Canada thistle, wire-stemmed muhly	A second (sequential) application of 2.5 L/ha will improve control in heavy weed infestations. If sequential applications of 2.5 L/ha are used they should be at least 2 weeks apart for best results on perennial weeds. This second application must be made no later than the flowering stage of the soybean. Perennial sowthistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. Wire-stemmed muhly should be 10-20 cm in height and actively growing. Plants not fully emerged at the time of application will escape the treatment.

Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

Tank Mixtures for Roundup Ready Soybeans

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit® herbicide may be tank mixed with DYNO GLYPHOSATE 360® herbicide at a rate of 2.5 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit® and apply up to and including the 3rd trifoliate leaf stage of the Roundup Ready soybeans in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit® as per instructions on the Pursuit® label and then add DYNO GLYPHOSATE 360® herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of DYNO GLYPHOSATE 360® herbicide and Pursuit® herbicide on glyphosate tolerant soybeans.

Only one application per season of DYNO GLYPHOSATE 360® herbicide at 2.5 litres per hectare tank mixed with Pursuit® herbicide at 0.16 to 0.21 litres per hectare is permitted.

Refer to the Pursuit® herbicide label for further safety precautions and handling instructions.

NONCROPLAND AND INDUSTRIAL USES

When applied as recommended under the conditions described, DYNO GLYPHOSATE 360® will control weeds in the non-cropland and industrial uses as listed in the WEED CONTROL IN NONCROPLAND, INDUSTRIAL USES chart.

TURFGRASS

DYNO GLYPHOSATE 360® may be applied to control existing vegetation prior to turf grass establishment or renovation. **DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.**

Where existing vegetation is growing under field or unmowed conditions, apply DYNO GLYPHOSATE 360® to actively growing weeds at the growth stages given in the charts on ANNUAL and PERENNIAL WEED CONTROL. Where the vegetation is growing under mowed turf grass management, apply DYNO GLYPHOSATE 360® after omitting at least one regular mowing to allow sufficient growth for good spray interception and translocation into underground plant parts.

Tillage or renovation techniques, such as vertical mowing, coring or slicing, should be delayed for 7 days after application to allow proper translocation into the underground plant parts. Delay establishment of the turfgrass to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient weed regrowth must be attained prior to application.

AVOID ALL CONTACT WITH DESIRABLE VEGETATION IN THE VICINITY OF THE RENOVATION OR ESTABLISHMENT AREA.

TREE INJECTION APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Trees may be controlled if DYNO GLYPHOSATE 360[®] is injected directly into the trunk using suitable equipment that penetrates into the living tissue.

DYNO GLYPHOSATE 360[®] is to be used at a rate of 1 mL (undiluted product) per 10 cm of trunk diameter at chest height. The injections should be spaced evenly around the tree and below any major branches. Application may be done during periods of active growth and full leaf expansion.

Control of trees greater than 20 cm may not be acceptable. Total control may not be evident for 1-2 years following treatment. This treatment will only provide suppression of big-leaf maple; late fall application will provide optimum suppression of big-leaf maple.

CUT STUMP APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Application must be made using low-pressure equipment (i.e. squirt bottle). Apply DYNO GLYPHOSATE 360[®] immediately to the surface of the freshly cut stump (i.e. within 5 minutes) at a rate of 0.5 mL DYNO GLYPHOSATE 360[®] for every 5 cm of trunk diameter at chest height. Treat only the cambial tissues (outer edge) of the cut surface. Do not treat the central area of the stump, or exposed roots or bark. This treatment may be made at any time of year, except during heavy sap flow or when freezing temperatures prevent application of DYNO GLYPHOSATE 360[®]. A water-soluble dye added to the solution may be used as a treatment indicator. Total control may not be apparent until 1-2 years after treatment.

WOODY BRUSH AND TREES (FOLIAR APPLICATIONS)

Spray coverage should be uniform and complete. Do not spray to the point of run off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on the target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

For woody brush and trees, apply 3 to 6 litres of DYNO GLYPHOSATE 360[®] per hectare. Use ground boom or boomless equipment, or apply as a 1 to 2% solution using hand held high volume equipment. Use the 6 L/ha rate for maple, alder and willow* species, as well as hard to control perennial weed species. (* Suppression only).

INDUSTRIAL SITES, RIGHTS-OF-WAY, RECREATIONAL AND PUBLIC AREAS

DYNO GLYPHOSATE 360[®] may be applied to control brush, trees, and annual and perennial weeds listed on this label **in industrial and rights-of-way areas, such as:** railways, forest roadsides, pipelines, highways, pumping stations, petroleum tank farms, telephone and power rights-of-ways, etc., **and in recreational and public areas, such as:** parks, golf courses, schoolyards, airports and other public areas.

NOTE: For all industrial sites, rights-of-ways, recreational and public areas, repeat treatment may be necessary to control regeneration or new growth.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

GROUND APPLICATION FOR ALL NON-CROPLAND USES:

For woody brush and trees, apply DYNO GLYPHOSATE 360[®] at 3 to 6 L/ha using ground boom, or boomless, or mist blower equipment. Or, apply as a 1 to 2% solution using hand-held high-volume equipment. Use the higher rate for maple, alder and willow* species, and for hard to control perennial weeds (*suppression only). Apply as directed to foliage of actively growing vegetation. Spray coverage should be uniform and complete. Do not spray to the point of runoff, or allow spray drift to contact desirable vegetation as severe injury or destruction may occur.

Mowed or tilled weeds should be allowed to reach optimum growth stage at time of application.

DO NOT APPLY UNDER WIND OR OTHER CONDITIONS THAT ALLOW DRIFT.

AERIAL APPLICATION: FOR INDUSTRIAL RIGHT-OF-WAY ONLY:

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Use Precautions

Directions for Use:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical-resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing

ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a spray volume of 30-100 L/ha

Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of DYNO GLYPHOSATE 360[®] accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion. For woody brush and trees, apply 3-6 L/ha. Use 6 L/ha for maple, alder and willow* species, and for hard to control perennial weed species. Use the recommended rates of the herbicide in 30 to 100 litres of water per hectare. As density of vegetation increases, spray volume should be increased within the allowed range to ensure complete coverage. (*suppression only)

PURPLE LOOSESTRIFE CONTROL

- DO NOT TREAT PLANTS OVER OPEN WATER. DYNO GLYPHOSATE 360[®] herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using handheld equipment, spray-to-wet.
- For wiper applications, see WIPER, WICK AND ROLLER EQUIPMENT section.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

Table 11: Weed control in non-cropland areas, and industrial uses

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Annual grasses and broad leaf weeds	2.25-3.5	50 - 100	1	Treat actively growing weeds.
Perennial Weeds	2.5	50 - 300	1	Treat actively growing weeds. Add 0.5% v/v of a recommended surfactant when using more than 150 L of water (see MINIMUM AND ZERO TILLAGE TANK MIXES) Use higher rate for heavy infestations and for long term control.
Quackgrass	4.75-7.0	50 - 300	2	
Canada thistle (bud stage)	4.75-7.0	100 - 300	2	
Purple loosestrife	6.0	300 – 600	1-2 (or 33% for wiper application)	See PURPLE LOOSESTRIFE CONTROL section for instructions on application. Summer through fall is optimum.
Other perennials	7.0-12	100 – 300	2	
Brush and Trees Birch, Cherry, Poplar, Western Snowberry, Willow	3.0-6.0	100-300	1-2	Summer through early fall.
Maple, Raspberry/ Salmonberry, Alder	6.0	100 – 300	2	Late summer through fall. Fall is optimum.
Turfgrass renovation: Annual & Perennial Weeds	2.5 – 12.0	100 – 300	1-2	Use higher end of rate range for perennials.

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Roadside vegetation (1-2 metres wide along shoulder)	1) 0.75 – 1.0 + 1.25 – 2.5L DyCleer 480® Agricultural Herbicide OR 2) 0.75 – 1.0 + 0.30L DyCleer 480® Agricultural Herbicide + 1.2L 2,4-D amine 500	25 – 150	-	Refer to tank mix section on product labels for specific weeds controlled. Refer to chart on ANNUAL WEED CONTROL for rates for specific weeds. For different 2,4-D formulations, adjust the rate accordingly. Do not apply to standing water.
Residual Control Annual & Perennial weeds.	2.5 – 12 + 4.0 – 9.0 L Simadex® Flowable	200 – 400	-	This tank mix will provide season-long control of most germinating broadleaf weeds and grasses, and may also provide post-emergent control of certain annual weeds. Do not apply to coarse, sandy soil or gravelly soil. One application per year. Use the most restrictive label directions for each product in the mix.

Table 12: Weed control in tree, vine and berry crops

CROP	RATE (L/Ha)	PRE-HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Apples, apricot, cherry (sweet/sour), peaches, pears, plums	2.25-12 (directed spray)	30	3	Annual and perennial weeds	Apply as directed spray with no more than 275 kPa pressure.
Apples, grapes	Tank Mix 2.25-12 + simazine 2.0-4.5 kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long pre-emergent control. Do not apply to coarse, sandy or gravelly soil. Use the more restrictive label directions for each product in the mix. DO NOT apply to orchards established less than 1 year or vineyards established less than 3 years. Simazine 80W [®] rate is equivalent to 2.25-5.0 kg/ha Princep Nine-T [®] , or 4.0-9.0 L/ha Simadex [®] .
Grapes	2.25-12 (directed spray)	14	3	Annual and perennial weeds	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. Do not apply to vines that have been established less than 3 years.
Highbush (cultivated) blueberry	2.8-5.6 (directed spray)	30	1	Quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	1-2% solution (spot treatment)	Apply in non-bearing year only	1	Wood brush	Apply as directed spray in mid-summer of the vegetative (non-bearing) year. See AGRICULTURAL AND CROPLAND USES section for instructions on spot treatments.

CROP	RATE (L/Ha)	PRE- HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Filberts, hazelnut (established plantations)	2.25-3.5 (directed spray)	14	-	Annual weeds	Use as directed spray, with no more than 275 kPa pressure.
Walnut, chestnut, Japanese chestnut	2.25-12 (directed spray)	-	2	Annual and perennial weeds	Apply late spring and fall, post-harvest but prior to a killing frost. Apply in 200-300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 2% wiper solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Cranberry	20% Solution (1L DYNO GLYPHOSATE 360® + 4 L water)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Strawberry	1-2% Solution (spot treatment) 33% solution (wiper applicator)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage. See AGRICULTURE AND CROPLAND USES section for instructions on spot treatments. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.

Table 13: Annual weed control

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or boomless	Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer canola, wild mustard, lady's thumb, stinkweed	Weeds up to 8 cm in height	0.75	50-100	For wild oats apply at 1 to 3 leaf stage. Add 350 mL of a surfactant registered for use such as Agral 90®, Ag-Surf®, and Companion™. For heavy wild oat infestations use 1.0 L/ha rate.
	All annual grasses listed above plus foxtail barley* (suppression only) All annual broadleaf weeds listed above plus flixweed** and kochia**.	Weeds 8 cm to 15 cm	1.0	50-100	Add 350 mL of Surfactant registered for use as listed above. *Apply before initiation of seed head or senescence of the lower leaves. **Suppression only. Refer to higher rates of this table.
	All annual grasses listed above plus downey brome, giant foxtail and Persian darnel. All annual broadleaf weeds listed above plus lamb's quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, narrow-leaf hawk's beard***	Weeds up to 15 cm in height	1.25-1.9	50-100	No additional surfactant required. *DO NOT use these rates on plants greater than 8 cm in height. **For 3 to 4 leaf stage use 1.9 L/ha rate. ***For weeds 8 cm to 15 cm in height use 1.9 L/ha.
	All annual grasses listed above plus crab grass and annual blue grass. All annual broadleaf weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch.	Weeds up to 15 cm in height	2.25	50-100	
	All annual grasses and broadleaf weeds listed above.	Weeds over 15 cm in height	3.5	50-100	

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Wipers and wicks	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	This mixture is a 33% solution. Contact point for wiper or wick must be at least 5 cm above desirable vegetation. In severe weed infestations, reduce ground speed to ensure adequate control. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	0.5- 1.0	10	This mixture is a 5- 10% solution. Roller speed 50-150 rpm. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications.

Table 14: Perennial weed control

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or Boomless	Alfalfa	Early bud to full bloom stage. Fall Applications only.	3.7-5.0	50-300	Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see ALFALFA CONTROL WITH 2,4-D TANK MIX section under SPECIAL NOTES FOR PERENNIAL WEED CONTROL section.
Boom or Boomless	Canada thistle	Bud stage or beyond	4.75 - 7.0	100-300	Allow 5 days after application before tillage. Heavy frost prior to application may decrease control.
		Rosette stage (summer fallow)	2.5	50-100	Apply in clean water using flat fan nozzles. Ensure proper growth stage by performing last summer fallow tillage between July 5 and August 1st. Allow regrowth for a minimum of 5 weeks to reach rosette stage and a minimum of 15 cm in diameter. Allow 10 days after application before tillage. Treatment after a mild frost is possible if leaves are still green and actively growing but not after heavy damaging frost.
Boom or Boomless	Dandelion	Up to 15 cm. in height	2.5	50-100	Allow 3 or more days after treatment before tillage for all rates. Use the higher rates when infestations are heavy.
		Over 15 cm. in height	3.7	50-300	Refer to DANDELION notes in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. Allow 7 or more days after treatment before tillage. For more information, see PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, AND DANDELION;
		Rosette to full bloom (preharvest)	2.5	50-100	SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Foxtail barley	Seeding to heading	2.5-5	50-100	Allow a minimum of 1 day after treatment before tillage or seeding. Use higher rates for larger more established plants, heavy infestations, or if plants are stressed.
Boom or Boomless	Common Milkweed	Bud to full bloom	2.5	50-100	Reduced results may occur if sprayed after full bloom. Milkweed may not all be in the correct stage, therefore, repeat treatments

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
		(preharvest) Bud to full bloom	12	100-300	may be required. Repeat treatment may be required. Allow 7 days or more after application before tillage. See PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Toadflax	Vegetative stage (summer fallow) Bud to full bloom (pre-harvest)	2.5	50-100	Apply in clean water using flat fan nozzles. Allow 7 or more days after treatment before tillage in summer fallow. For more information, see Summer fallow Control under TOADFLAX in SPECIAL NOTES FOR PERENNIAL WEED CONTROL section, or PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Quack grass control, light to moderate infestations	3 to 4 green leaves or more	2.5	50-300	Apply in clean water using flat fan nozzles. Allow 3 or more days after treatment before tillage. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. For higher water volumes (ie.,150- 300L/ha) an approved surfactant must be added at 0.5 L per 100L of clean water. (0.5% v/v). Refer to list of surfactants in QUACKGRASS part of SPECIAL NOTED FOR PERENNIAL WEED CONTROL section. See also below.
	Quack grass (long term control, heavy infestations, high water volumes)	3-4 green leaves or more	2.5 - 7.0	50 - 300	Allow 3 or more days after treatment before tillage. Rates higher than 2.5L/ha will provide more consistent, longer term control especially with heavy infestations and/or higher (150-300 L) water volumes. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information.

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
	Other perennial weeds	Early heading or early bud stage (See VEGETATION CONTROLLED section)	7-12	100-300	Use higher rate for weeds beyond 8 cm in height or in heavy weed infestation. Allow 7 days after application before tillage. DYNOLYPHOSATE 360® rate is equivalent to 70 to 120 mL/100 m ² .
	Woody brush and trees	Actively growing from June through August	3-6	100-300	Use higher rate for maple, alder, Rubus species and willow*. Spray to wet.
High volume or knapsack	Woody brush and trees	Actively growing from June through August	1-2.0	100	This mixture is a 1 to 2% solution. Use higher rate for maple, alder, Rubus species and willow*. Spray to wet. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on high volume or knapsack applications.
Wipers and wicks	Perennial weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual and perennial weeds	Weeds to be at least 15 cm above desirable vegetation	0.5-1.0	10	This mixture is a 5-10% solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications. This treatment will only suppress perennial weeds contacted. Roller speed 50-150 rpm.
Tree Injection	Trees*	During periods of active growth and full leaf expansion except during periods of heavy sap flow.	0.5 mL/5 cm of trunk diameter at chest height	None	Suitable equipment must be used to penetrate to living tissue. Space applications evenly around the circumference of the trunk below major branches. Control of trees with trunk diameters greater than 20 cm may not be acceptable. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on TREE INJECTION APPLICATIONS. *Suppression only for willow.

SPECIAL NOTES FOR PERENNIAL WEED CONTROL

QUACKGRASS

For **season-long control on fall tilled ground**: Apply 2.5 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SURFACTANTS

The following is a list of approved surfactants for use with DYNO GLYPHOSATE 360[®] Herbicide for control of quackgrass:

Agral 90[®]
Companion[™]
Ag-Surf[®]

Always refer to surfactant label for specific instructions regarding use of that product.

CANADA THISTLE

Control of Canada thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

DYNO GLYPHOSATE 360[®] HERBICIDE PLUS BANVEL[®] OR ORACLE[®] TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summer fallow or in postharvest stubble, apply 1.7 litres per hectare DYNO GLYPHOSATE 360[®] Herbicide plus 1.25 litres per hectare Banvel[®] or Oracle[®] in 100-200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90[®], Ag-Surf[®]

or Companion™. For best results in summer fallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

TOADFLAX

Control of Toadflax in a Summer Fallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 10th and July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are a minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 2.5 to 5.0 litres per hectare DYNO GLYPHOSATE 360® Herbicide and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 2.5 to 5.0 litres per hectare DYNO GLYPHOSATE 360® Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14-day interval between application and planting is required.

Use the higher DYNO GLYPHOSATE 360® Herbicide rates when perennial grasses are prevalent.

ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to **PERENNIAL WEED CONTROL WITH DYNO GLYPHOSATE 360 HERBICIDE®** table.

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow up tillage after application should be delayed 5 to 7 days for best results. See **ANNUAL AND PERENNIAL WEED CONTROL** tables for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required to control weeds regenerating from seeds or other underground parts.

Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

DYNO GLYPHOSATE 360® is a registered trademark of Farmer's Business Network Canada, Inc.

Companion™ and Lontrel® are the registered trademarks of Dow AgroSciences LLC

Aatrex Nine-O®, Agral®, DyCler®, Princep Nine-T® are the registered trademarks of a Syngenta Group Company

Ag-Surf® is a registered trademark of IPCO

Banvel®, Marksman® and Pursuit® are the registered trademarks of BASF

Pardner® and Simadex® are the registered trademarks of Aventis

Oracle® is a registered trademark of Gharda

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33088
Product Name :	FLAME GLYPHOSATE 360
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2018-05-08
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2023-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	GLYPHOSATE (PRESENT AS ISOPROPYLAMINE SALT OR ETHANOLAMINE SALT) isopropylammonium N-(phosphonomethyl)glycinate or 2-hydroxyethanaminium [(phosphonomethyl)amino]acetate CASN = (GUAR = 360 g/l NOMINAL)

Date Modified: 2020-08-31

2020-04-24
2020-0910 (revised 2020-05-26)

GROUP	9	HERBICIDE
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FLAME GLYPHOSATE® 360

HERBICIDE AGRICULTURAL AND INDUSTRIAL
Solution



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L

ACTIVE INGREDIENT: Glyphosate, 360 grams acid equivalent per litre present as the isopropylamine salt

Registration No.: 33088 Pest Control Products Act

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

EMERGENCY TELEPHONE NUMBER

IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL CANUTEC, FREE DAY OR
NIGHT, 1-613-996-6666

READ ENTIRE LABEL CAREFULLY BEFORE USE

FLAME GLYPHOSATE 360 is a non-selective, non-residual herbicide containing 360 g/L glyphosate (free acid) as isopropylamine salt, formulated as a water-soluble liquid. It is used for the control of most herbaceous weeds in agricultural and industrial sites. The product is absorbed through the foliage and translocated throughout the plant down to the root system. Visible symptoms such as gradual wilting and yellowing are usually obvious within 2 to 4 days of application to annual weeds, but may not be apparent for 7 to 10 days on perennial weeds.

GENERAL PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- MAY CAUSE EYE IRRITATION
- HARMFUL IF SWALLOWED
- AVOID CONTACT WITH EYES AND SKIN
- WASH HANDS AND EXPOSED SKIN BEFORE EATING, DRINKING, OR SMOKING, AND AFTER WORK

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S contact 1-888-931-2530 or www.croplife.ca.

FOR GOOD AGRICULTURAL PRACTICE:

- WEAR GLOVES, COVERALLS, AND EYE PROTECTION DURING MIXING, LOADING, CLEANUP, AND REPAIR PROCEDURES
- WASH SPLASHES FROM SKIN AND EYES IMMEDIATELY

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

EMERGENCY TELEPHONE NUMBER: IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS

FLAME GLYPHOSATE 360 is toxic to aquatic organisms and non-target terrestrial plants. Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment. Avoid all drift or contact with vegetation for which treatment is not intended as damage or destruction may occur. Observe buffer zones specified under **Directions for Use**.

- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic, or plastic-lined containers. **DO NOT MIX, STORE, OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or the spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury if ignited by open flame, spark, welder's torch, lighted cigarette, or other ignition source.

STORAGE

KEEP AWAY FROM FOOD, DRINK, AND ANIMAL FEEDSTUFFS. KEEP ONLY IN ORIGINAL CONTAINER, TIGHTLY CLOSED.

IN CASE OF SPILL:

Contact the provincial regulatory authorities and Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) in case of spill, and for clean-up of spills. For environmental concerns call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

DISPOSAL OF CONTAINERS

RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location for the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsing to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

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RETURNABLE-REFILLABLE CONTAINERS

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

NOTICE TO USER:

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FLAME GLYPHOSATE® 360

HERBICIDE AGRICULTURAL AND INDUSTRIAL
Solution



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L

ACTIVE INGREDIENT: Glyphosate 360 g/L grams acid equivalent per litre present as the isopropylamine salt

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta Canada T1V 1M7

1-844-200-FARM (3276)

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NIGHT, 1-613-996-6666

Registration No.: 33088 *Pest Control Products Act*

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

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NOTICE TO USER:

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PRECAUTIONS

Avoid contact with desirable vegetation by direct application or spray drift as severe injury or destruction may result. Avoid drift or overspray to non-target vegetation and wildlife habitats.

DO NOT USE IN GREENHOUSES.

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

The restricted entry interval is 12 hours after application for all agricultural uses.

Drain and clean sprayer and parts immediately after using this product.

Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Reduced results may occur if water which contains suspended soil is used; examples are water from ponds and ditches. Poor control may also occur when treating weeds heavily covered with dust.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

GENERAL PRODUCT INFORMATION

FLAME GLYPHOSATE 360 is a water-soluble herbicide for non-selective weed control. FLAME GLYPHOSATE 360 is applied as a foliar spray for the control of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

FLAME GLYPHOSATE 360 moves through the plant from the point of foliage contact into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds effects may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down the activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant, which advances to complete browning of above ground growth and deterioration of underground plant parts.

FLAME GLYPHOSATE 360 does not provide residual weed control. For subsequent residual weed control, apply a registered residual herbicide. Read and carefully observe cautionary statements and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. **Do not apply if rainfall is forecast for the time of application.**

DIRECTIONS FOR USE

GENERAL APPLICATION NOTES:

Results are best when weeds are actively growing. If weeds have been mowed, allow to return to recommended growth stage. Delay application until vegetation has emerged to the stage described for the control of such vegetation under the ANNUAL and PERENNIAL WEED CONTROL charts of this booklet to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or rootstocks of perennials will not be affected by the spray and will continue to grow. For this reason, best control of most perennial weeds is obtained when the treatment is made at the late growth stages approaching maturity.

Always use higher rates of FLAME GLYPHOSATE 360 per hectare within the recommended range when weed growth is heavy or dense or weeds are growing in an undisturbed (uncultivated) area. **Do not treat weeds under poor growing conditions such as drought, flooding, frost, high temperatures, disease or insect damage as reduced weed control may result.** Reduced results may also occur when treating weeds heavily covered with dust. Heavy rainfall immediately after application may wash the product off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

FLAME GLYPHOSATE 360 should only be mixed with products recommended on this label. Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

TANK MIXES

FLAME GLYPHOSATE 360 may be used with the following surfactants: Agral 90[®], Ag-Surf[®], Companion[™]. See charts on **TANK MIXES FOR ANNUAL** and for **PERENNIAL WEED CONTROL**.

FLAME GLYPHOSATE 360 may be used with the following herbicides:

Banvel[®], Oracle[®], Pardner[®], Pursuit[®], 2,4-D low volatile ester or amine formulations: See section on MINIMUM AND ZERO TILLAGE TANK MIXES.

Princep Nine-T[®], Simadex[®]: See section on **TREE, VINE, AND BERRY CROPS**.

DyClee[®] 480[®], Simazine 80W[®], Simadex[®] Flowable, 2,4-D amine: See section on

NONCROPLAND AND INDUSTRIAL USES

Always refer to the surfactant and herbicide labels for specific instructions regarding the use of that product.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Trade Name

Agral 90[®], DyClee[®], Princep Nine-T[®]

Ag-Surf[®]

Banvel[®], Pursuit[®]

Companion[™]

Pardner[®], Simadex[®]

Oracle

Trademark Owners

Syngenta

IPCO

BASF

Dow Chemical Co.

Bayer CropScience

Gharda USA, Inc

VEGETATION CONTROLLED

FLAME GLYPHOSATE 360 controls many annual and perennial grasses, broadleaf weeds and woody brush and trees when applied as recommended and under the conditions described. For information on how to control specific weeds, including herbicide rate, refer to the ANNUAL WEED CONTROL and PERENNIAL WEED CONTROL charts of this label. The following is a partial list of the weeds controlled:

Table 1: Annual weed control by FLAME GLYPHOSATE 360®

Weed Type: Annual Weeds	Genus and Species
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Broomcorn millet	<i>Panicum miliaceum</i>
Cheatgrass	<i>Bromus tectorum</i>
Chickweed	<i>Stellaria media</i>
Cocklebur	<i>Xanthium strumarium</i>
Corn Spurry	<i>Spergula arvensis</i>
Common Lamb's quarters	<i>Chenopodium album</i>
Cow Cockle	<i>Saponaria vaccaria</i>
Dodder	<i>Cuscuta spp.</i>
Downy brome	<i>Bromus tectorum</i>
Eastern black flowering nightshade	<i>Solanum ptycanthum</i>
Fall panicgrass	<i>Panicum dichotomiflorum</i>
Fleabane (Canada)	<i>Erigeron canadensis</i>
Flixweed	<i>Descurainia sophia</i>
Giant foxtail	<i>Setaria faberii</i>
Green foxtail	<i>Setaria viridis</i>
Green Smartweed	<i>Polygonum scabrum</i>
Hairy crabgrass	<i>Digitaria sanguinalis</i>
Hempnettle	<i>Galeopsis tetrahit</i>
Kochia	<i>Kochia scoparia</i>
Lady's thumb	<i>Polygonum persicaria</i>
Narrow-leaf hawk's beard	<i>Crepis tectorum</i>
Narrow-leaf vetch	<i>Vicia angustifolia</i>
Night flowering catchfly	<i>Silene noctiflora</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Persian darnel	<i>Lolium persicum</i>
Prickly lettuce	<i>Lactuca scariola</i>
Ragweed (common)	<i>Ambrosia artemisiifolia</i>

Weed Type: Annual Weeds	Genus and Species
Redroot Pigweed	<i>Amaranthus retroflexus</i>
Russian thistle	<i>Salsola pestifier</i>
Shepherd's purse	<i>Capsella bursa-pastoris</i>
Smooth crabgrass	<i>Digitaria ischaemum</i>
Smooth Pigweed	<i>Amaranthus hybridus</i>
Sowthistle (annual)	<i>Sonchus oleraceus</i>
Stinkweed	<i>Thlaspi arvense</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Volunteer barley	<i>Hordeum spp.</i>
Volunteer canola	<i>Brassica spp.</i>
Volunteer corn	<i>Zea mays</i>
Volunteer flax	<i>Linum spp.</i>
Volunteer wheat	<i>Triticum spp.</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
Wild mustard	<i>Sinapsis arvensis</i>
Wild oats	<i>Avena fatua</i>
Wild tomato	<i>Solanum triflorum</i>
Yellow foxtail	<i>Setaria glauca</i>

Table 2: Perennial weeds control by FLAME GLYPHOSATE 360®

Weed Type: Perennial Weeds	Genus and Species
Alfalfa	<i>Medicago sativa</i>
Bluegrass (Canada)	<i>Poa compressa</i>
Bluegrass (Kentucky)	<i>Poa pratensis</i>
Brome grass (smooth)	<i>Bromus inermis</i>
Canada thistle	<i>Cirsium arvense</i>
Common cattail	<i>Typha latifolia</i>
Common milkweed	<i>Asclepias syriaca</i>
Cottontop	<i>Eriophorum chamissonis</i>
Curled dock	<i>Rumex crispus</i>
Dandelion	<i>Taraxacum officinale</i>
Foxtail barley	<i>Hordeum jubatum</i>
Hemp dogbane	<i>Apocynum cannabinum</i>
Hoary cress	<i>Cardaria draba</i>
Japanese knotweed	<i>Polygonum cuspidatum</i>
Perennial sowthistle	<i>Sonchus arvensis</i>
Poison ivy	<i>Rhus radicans</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Quackgrass	<i>Elytrigia repens</i>
Toad flax	<i>Linaria vulgaris</i>
Wormwood (Absinth)	<i>Artemisia absinthium</i>
Yellow Nutsedge	<i>Cyperus esculentus</i>

Table 3: Woody weeds, bush and tree control by FLAME GLYPHOSATE 360®

Weed Type: Bush and Trees	Genus and Species
Alder	<i>Alnus spp.</i>
Birch	<i>Betula spp.</i>
Broadleaf meadowsweet	<i>Spiraea latifolia</i>
Canadian rhododendron	<i>Rhododendron canadense</i>
Cedar	<i>Thuja spp.</i>
Cherry	<i>Prunus spp.</i>
Douglas fir	<i>Pseudotsuga spp.</i>
Hemlock	<i>Tsuga spp.</i>
Maple	<i>Acer spp.</i>
Mountain-fly honeysuckle	<i>Lonicera villosa</i>
Pine	<i>Pinus spp.</i>
Poplar	<i>Populus spp.</i>
Raspberry	<i>Rubus spp.</i>
Salmonberry	<i>Rubus spectabilis</i>
Sheep laurel	<i>Kalmia angustifolia</i>
Snowberry (western)	<i>Symphoricarpos occidentalis</i>
Sweet fern	<i>Comptonia peregrina</i>
Willow	<i>Salix spp.</i>
Withrod	<i>Viburnum cassinoides</i>

RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, FLAME GLYPHOSATE 360[®] Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to FLAME GLYPHOSATE 360[®] Herbicide and other Group 9 herbicides. The resistance biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of FLAME GLYPHOSATE 360[®] Herbicide or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance contact Farmer's Business Network Canada, Inc. at 1-844-200-3276.

APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS

GROUND BOOM AND BOOMLESS SPRAYERS

Mixing: For field or industrial type sprayers, fill the spray tank with one half the required amount of water. Add the proper amount of FLAME GLYPHOSATE 360[®] herbicide (see appropriate chart) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent any excessive foaming. Remove the hose from the tank immediately after filling to avoid back siphoning into water source (a one-way valve should be installed to prevent back siphoning). Use of mechanical agitators may cause excessive foaming. By-pass lines should terminate at the bottom of the tank.

Application: Use flat fan nozzles in boom sprayers. To control perennial weeds, woody brush, and trees as listed, apply FLAME GLYPHOSATE 360[®] in 50 to 300 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure. To control annual weeds as listed, apply FLAME GLYPHOSATE 360[®] in 50 L to 100 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure.

KNAPSACK SPRAYERS, HAND HELD & HIGH-VOLUME EQUIPMENT

High volume spraying utilizes handguns or other suitable nozzle arrangements to apply a directed spray to weeds, woody brush, and trees. Use coarse sprays only.

Mixing: Mix the proper amount of FLAME GLYPHOSATE 360 with water in a large container. Fill the sprayer with the mixed solution. Unless otherwise stated, make a 1% solution of FLAME GLYPHOSATE 360 in water (1 L of FLAME GLYPHOSATE 360 in 100 L of water). A 2% solution (2 L of FLAME GLYPHOSATE 360 in 100 L of water) should be used on harder to control perennials.

Application: Spray coverage should be uniform and complete. Apply on a spray-to-wet basis. Do not spray to the point of runoff. Hand gun application should be properly directed to avoid spraying desirable plants.

MIST BLOWERS

For control of woody weeds, brush, and trees listed in the VEGETATION CONTROLLED list, use the recommended rate of FLAME GLYPHOSATE 360 in at least 200 L of water per hectare.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

WIPER, WICK AND ROLLER EQUIPMENT

These applicators apply FLAME GLYPHOSATE 360 solution directly onto the weeds by contacting the weed with an absorbent material containing the herbicide solution. Weeds should be a minimum of 15 cm above the desired vegetation to prevent contact of FLAME GLYPHOSATE 360 with the desired vegetation.

Mixing: Mix the proper amount of FLAME GLYPHOSATE 360 with water in a large container. Use this mixed solution in the wiper, wick or roller equipment.

Application: These applicators can be used to control weeds in:

- Industrial sites, tree plantings, and non-crop sites as specified.
- The following agricultural crops:
 - o Apple, cherry, peach, pear and plum orchards, grape vineyards, soybeans, dry beans, strawberries, and cranberries (note: applications must be made before initial pod set in soybeans and dry beans).

The applicator should be adjusted so that the contact point of the wiper, roller, or wick is at least 5 cm above the desirable vegetation. Droplets or foam of the FLAME GLYPHOSATE 360 solution settling on desirable vegetation may result in discoloration, stunting or destruction. Best results are obtained when more of the weed is exposed to the herbicide solution. It is recommended that two applications be made in opposite directions, if possible. Weeds not contacted will not be affected. This may occur in dense clumps, severe infestation, or when the height of the weeds varies so that not all weeds are contacted. In these instances, a repeat treatment may be necessary.

AVOID CONTACT WITH DESIRABLE VEGETATION

Wiper, Wick, Roller Application Notes:

- Maintain wiper equipment in good operating condition. Care must be taken with all types of wipers to ensure that the absorbent material does not become oversaturated, causing the herbicide to drip onto desirable vegetation.
- Avoid leakage or dripping onto desirable vegetation.
- Adjust height of wiper applicator to ensure proper contact with weeds.
- Keep wiping surfaces clean.
- Maintain recommended roller speed on roller applicators while in use.
- DO NOT use wiper equipment when weeds are wet.
- DO NOT operate equipment at ground speeds less than 4 or greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to ensure good coverage of weeds.
- Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.
- Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended FLAME GLYPHOSATE 360 herbicide solution directly to the weed.
- Mix only the amount of solution to be used during a one-day period, as reduced activity may result from use of leftover solution. Thoroughly drain and clean all equipment immediately after use.

AERIAL APPLICATION

Aerial Application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h (preharvest) or 8 km/h (rights-of-way) at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572,1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Directions for Use (for additional information see section on Aerial Application for Industrial Rights-of-Way ONLY)

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Aerial Use Precautions

Apply only when weather conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following: Volume: Apply the recommended rate in a spray volume of 30-100 L/ha.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of FLAME GLYPHOSATE 360 accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

BUFFER ZONES:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies). Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Agricultural, forestry and non-cropland systems		Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
			Aquatic habitats	Terrestrial habitats
Agricultural crop system and ground boom application method				
Pre-seeding applications for cranberry, filberts, hazelnut and all other crops. Established pasture and summer fallow.		1	1	1
Filberts or hazelnut		4	1	1
Strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)		2	1	2
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, forage grasses and legume including seed production		3	1	2
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)		4	1	2
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes		3	1	3
Agricultural crop system and airblast application method (including mist blower)				
Pasture		1	20	30
Turfgrass (Prior to establishment or renovation)		2	25	35
Forest plant system and ground boom application method				
<i>Forest and woodlands > 500 ha</i> Site preparation		2	1	NR
Forest plant system and airblast application method (including mist blower)				
<i>Forest and woodlands > 500 ha</i> Site preparation		2	1	NR
Non-cropland system and ground boom application method				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	3*
Non-cropland system and airblast application method (including mist blower)				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	30*
Agricultural crop system and aerial application method				
	Wing type			
Crops for pre-seeding treatments only	Fixed and rotary wing	1	15	20
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30
Forage grasses and legume including seed production	Fixed and rotary wing	1	20	40
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40
Summer fallow	Fixed wing	1	20	45
	Rotary wing	1	20	40
Pasture	Fixed wing	1	30	70
	Rotary wing	1	30	55

Forestry system and aerial application method				
<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	10	NR
	Rotary wing	2	1	NR
<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	5	NR
	Rotary wing	2	1	NR
Non-cropland system and aerial application method				
Non-crop land and industrial uses: rights-of way areas only	Fixed wing	3	100	NR
	Rotary wing	3	60	NR

*Buffer zones for the protection of terrestrial habitats are not required for forestry uses or for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

NR = Not Required

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

AGRICULTURAL AND CROPLAND USES

The following are use situations for FLAME GLYPHOSATE 360 herbicide. The type of vegetation present and the use situation will dictate the choice of application equipment. Information on the equipment selected to apply FLAME GLYPHOSATE 360 can be found in the APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section. Use rates can then be selected from the ANNUAL and PERENNIAL WEED CONTROL charts.

PREPLANT TREATMENT

FLAME GLYPHOSATE 360 can be applied prior to planting of all crops for control of emerged weeds listed on the label. Ensure weeds are at the recommended growth stage at the time of application. Apply BEFORE seeding or transplanting crop.

SUMMER FALLOW

FLAME GLYPHOSATE 360 may be applied in summer fallow to control weeds listed on the label. Ensure weeds are at the recommended growth stage and actively growing at the time of application. Reduced control may result if weeds are drought stressed. Repeat treatments may be necessary to control later germinating weeds.

MINIMUM AND ZERO TILLAGE SYSTEMS (ALL FIELD CROPS INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES AND CORN)

FLAME GLYPHOSATE 360 may be applied before or after seeding but before crop emerges for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Weeds should be treated at the growth stage according to the ANNUAL and PERENNIAL WEED CONTROL charts. **DO NOT APPLY AFTER CROP EMERGENCE.**

Since FLAME GLYPHOSATE 360 does not provide residual control, application too far in advance of seeding may allow weeds to germinate between application and crop emergence.

MINIMUM AND ZERO TILLAGE TANK MIXES

FLAME GLYPHOSATE 360 Herbicide plus Pardner[®] (bromoxynil) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley, and oats. See chart on TANK MIXES for ANNUAL WEED CONTROL.

FLAME GLYPHOSATE 360 Herbicide plus Pursuit[®] can be applied before or after seeding, but prior to crop emergence in soybeans. FLAME GLYPHOSATE 360 herbicide will control emerged weeds listed on this label when applied as directed (see VEGETATION CONTROLLED lists). Pursuit[®] will control weeds germinating from seed. Add the recommended rates of both products in 100 L of water/ha following the instructions on the Pursuit[®] herbicide label.

Refer to the Pursuit[®] label for further information on weeds controlled, application directions, and use precautions. Only SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT and WINTER WHEAT may be planted the season following a Pursuit[®] application. Winter wheat may be planted the same year as a Pursuit[®] application to soybeans, but not earlier than 120 days after the application.

DO NOT APPLY AFTER CROP EMERGENCE.

**Table 4: FLAME GLYPHOSATE 360® TANK MIXES for ANNUAL WEED CONTROL:
Summer fallow & minimum tillage systems treatment rates**

TANK MIXTURES	RATE L/ha	WEEDS CONTROLLED++	COMMENTS: (Apply in 50-100 L/ha water; add 350 mL/ha surfactant)
FLAME GLYPHOSATE 360 + Banvel® or Oracle®	0.75 - 1.0 + 0.29	Volunteer cereals, wild oats, green foxtail, volunteer canola (rapeseed), wild mustard, flixweed*, lamb's quarters, lady's thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *FLAME GLYPHOSATE 360 applied at 1.0 L/ha rate only. **Suppression only. See other tank mixtures for control options.
FLAME GLYPHOSATE 360 + Pardner®	0.75 - 1.0 + 1.25	Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's thumb, stinkweed, wild buckwheat*, redroot pigweed**, kochia**, wild oats**	This tank mix for summer fallow use; and prior to planting wheat, oats, and barley in minimum tillage systems. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use FLAME GLYPHOSATE 360 at 1.0L/ha rate for wild buckwheat control. **1.0L/ha rate, suppression only. See other tank mixtures for control options.
FLAME GLYPHOSATE 360® + 2,4-D#	0.75 - 1.0 + 1.2	Volunteer cereals, wild oats*, green foxtail*, volunteer canola (rapeseed), wild mustard, Flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters**, Russian thistle**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use FLAME GLYPHOSATE 360 at 1.0 L/ha rate only for wild oat and green foxtail control. **Suppression only. See other tank mixtures for control options.

#0.56 kg ai/ha of 2,4-D. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

++For foxtail barley suppression, refer to chart on ANNUAL WEED CONTROL.

NOTE: All FLAME GLYPHOSATE 360 herbicide tank mixtures for annual weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf® and Companion™. Surfactant should be added at a rate of 350 mL per hectare in 50-100 L of clean water.

Table 5: FLAME GLYPHOSATE 360® tank mixtures for perennial weed control summer fallow or fall stubble

TANK MIXTURES	RATE L/ha	WEEDS CONTROLLED	COMMENTS:
FLAME GLYPHOSATE 360® + Banvel® or Oracle®	1.7 L/ha + 1.25 L/ha	Canada thistle, perennial sow thistle	Apply in 100-200 L/ha water; add 350 mL/ha surfactant Summer fallow: Cultivate in the spring and apply when majority of thistles are 15 to 25 cm tall, and before the bud stage. Cultivate 3 weeks after application. Fall stubble: Apply to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: All FLAME GLYPHOSATE 360® herbicide tank mixtures for perennial weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf®, or Companion™.

Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mix.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

FALL STUBBLE

Apply in the fall as a postharvest stubble treatment for control of perennial weeds including quackgrass and Canada thistle. Allow the Canada thistle and quackgrass to regrow to 20-25 cm tall. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frost prior to treatment may decrease control.

SPOT TREATMENT (IN CROP)

FLAME GLYPHOSATE 360 may be applied for the control of Canada thistle, quackgrass and other perennial weeds in forage crops, barley, wheat, oats, soybeans and legumes, including seed production. Treatments may be made up to heading of small grain, initial pod set on soybeans and legumes and emergence of seed heads. Avoid drift beyond the treated area.

Application can be made using a boom sprayer, knapsack, or high-volume equipment (see APPLICATION AND MIXING INSTRUCTIONS section). Applications should be made using the same growth stages as listed in the ANNUAL and PERENNIAL WEED CONTROL charts. Or, use a 1% solution for annul weeds and quackgrass and a 2% solution for other perennial weeds (a 1% solution equals 1 litre FLAME GLYPHOSATE 360® herbicide in 100 litres of spray solution). The 1% and 2% solutions should be applied to wet, but not to run off.

NOTE: THE CROP IN THE TREATED AREA WILL BE KILLED BY THE TREATMENT.

DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS BEFORE GRAZING IN, OR HARVESTING TREATED AREAS AS FORAGES.

FORAGE GRASSES AND LEGUMES

Use FLAME GLYPHOSATE 360[®] to control or suppress existing vegetation prior to emergence of legumes and grasses. If legumes and grasses are underseeded with a cover crop, FLAME GLYPHOSATE 360[®] must be applied prior to planting any cover crop.

PASTURE RENOVATION

FLAME GLYPHOSATE 360[®] may be used to control or suppress existing vegetation for zero tillage seeding of legume or grass pasture into established sod for renovation. Weed growth should be at least 20 cm high and most weed seeds should have germinated at the time of spraying.

FORAGE SEED PRODUCTION (FOR SPOT TREATMENT)

FLAME GLYPHOSATE 360[®] may be applied as a spot treatment for control of perennial weeds such as quackgrass and Canada thistle in seed fields. Apply to weeds at least 20-25 cm in height but before emergence of seed head.

The crop in the treated area will be killed. For this reason, take particular care to avoid drift outside the treated area.

PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, DANDELION, TOADFLAX and MILKWEED; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, dandelion, toadflax and common milkweed, and season-long control of perennial sow thistle, FLAME GLYPHOSATE 360[®] can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linolenic acid varieties), lentils, peas, dry beans and soybeans. DO NOT apply to crops grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tilling may interfere with harvest operations. **EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN THE ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.**

FLAME GLYPHOSATE 360[®] should be applied pre-harvest at 2.5 L/ha in 50 to 100 L/ha of clean water, by GROUND APPLICATION ONLY.

When to Apply: Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS chart for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7-14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Use Precautions: Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g. sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife,

should be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

DO NOT apply using aerial application equipment

Table 6: Guidelines for timing of preharvest applications

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL INDICATORS
WHEAT, BARLEY, OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including glyphosate tolerant varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linolenic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour, pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

Refer to the general guidelines for aerial application as well as specific instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION

FOR PRAIRIE PROVINCES ONLY (Including INTERIOR AND PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators, and aerial application services, approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patterning) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 - 600 microns) or very coarse (600 - 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a FLAME GLYPHOSATE 360[®] aerial application training course.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24-month period. All pilots who do not meet the minimum experience standard must work under the direct daily supervision of a qualified pilot.

DIRECTIONS FOR USE

FLAME GLYPHOSATE 360[®] may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. FLAME GLYPHOSATE 360[®] can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linoleic acid varieties), lentils, peas, dry beans, and soybeans. DO NOT apply to any crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

FLAME GLYPHOSATE 360® should be applied at 2.5 L/ha in 20 - 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS for visible indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 - 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Table 7: Guidelines for timing of preharvest applications (restricted use)

CROP(S)	PERCENT GRAIN MOISTURE	VISIBLE SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linoleic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
FORAGES	Not applicable	Normal stage for forage harvesting.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS (including glyphosate tolerant varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.

USE PRECAUTIONS:

AVOID DRIFT ON TO IMPORTANT WILDLIFE HABITATS. EXTREME CARE MUST BE TAKEN WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS.

Apply only in wind conditions in compliance with local and/or provincial regulations. Do not apply when other climatic conditions, including lesser wind velocities, will allow significant drift to occur.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that disperse spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. See # 1 of the NATURE OF RESTRICTION section for additional details.

Do not overspray or allow drift on to bodies of water, wetlands† and/or wetland vegetation (e.g., sloughs, swamps, bogs, marshes, potholes), shelterbelts, woodlots and other cover on the edge of fields.

IN ORDER TO REDUCE THE DRIFT HAZARD TO NON-TARGET PLANTS AND AQUATIC VEGETATION IN THE HABITATS LISTED ABOVE, DO NOT APPLY WITHIN 100 METRES OF THE EDGE OF ANY OF THESE HABITATS. Do not apply directly to roadside ditches, or apply under conditions that would favour drift into roadside ditches.

†A wetland is any land where the water table stands at or above the land surface for at least part of the year, and contains vegetation associated with wetlands such as bulrushes, sedges, cattails, etc.

Ensure uniform application - To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills.

PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.

The maintenance of an organic coating (paint) which meets aerospace specification MILC-38412 may prevent corrosion.

TREE, VINE, and BERRY CROPS

FLAME GLYPHOSATE 360[®] controls annual and perennial weeds in established vineyards or orchards, in blueberry, cranberry, and strawberry, or for site preparation prior to transplanting tree or vine crops. See chart on WEED CONTROL IN TREE, BERRY, and VINE CROPS for rate and time of application information.

This product does not provide residual or pre-emergent weed control. Repeat applications may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. For subsequent weed control, follow a program using residual herbicides or use repeated applications of FLAME GLYPHOSATE 360[®].

DO NOT APPLY MORE THAN 35 L OF FLAME GLYPHOSATE 360[®] HERBICIDE PER HECTARE PER YEAR. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF THE HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURE BROWN BARK CAN RESULT IN SERIOUS CROPDAMAGE.

Allow annual and perennial weeds that have been mowed, grazed, or cut, time to regrow to recommended growth stage for treatment.

Applications may be made with boom sprayer, shielded sprayers, hand held and high-volume orchard guns, or with wiper, wick, or roller equipment (orchards, vineyards, cranberry and strawberry only).

TREE PLANTING - Shelterbelts, Nursery Stock, Woody Ornamentals

FLAME GLYPHOSATE 360[®] may be applied to control annual and perennial weeds listed on this label. This may be used for site preparation prior to establishing plantations, or as a

post directed spray in established plantations of the following species:

Table 8: Trees where FLAME GLYPHOSATE 360[®] may be applied to control

Deciduous Trees		Coniferous Trees	
Name	Genus and Species	Name	Genus and Species
Ash	<i>Fraxinus spp.</i>	Fir	<i>Abies spp.</i>
Caragana	<i>Caragana spp.</i>	Juniper	<i>Juniperus spp.</i>
Cherry	<i>Prunus spp.</i>	Pine	<i>Pinus spp.</i>
Elm	<i>Ulmus spp.</i>	Spruce	<i>Picea spp.</i>
Lilac	<i>Syringa spp.</i>	Yew	<i>Taxus spp.</i>
Maple	<i>Acer spp.</i>		
Mountain ash	<i>Sorbus americana</i>		
Poplar	<i>Populus spp.</i>		
Russian olive	<i>Elaeagnus spp.</i>		
Willow	<i>Salix spp.</i>		

SPRAY MAY CONTACT MATURE BROWN BARK ONLY.

Avoid contact with non-target plants, foliage, or suckers of established plantations.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. **DO NOT** treat Christmas tree plantations in the year of anticipated harvest.

GLYPHOSATE TOLERANT CROPS

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA (I.E., VARIETIES WITH THE ROUNDUP[®] READY GENE).

WARNING: APPLY FLAME GLYPHOSATE 360[®] HERBICIDE ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to the **GENERAL PRODUCT INFORMATION, GENERAL APPLICATION NOTES, and APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS** sections.
- Apply FLAME GLYPHOSATE 360[®] herbicide in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visible yellowing may occur when FLAME GLYPHOSATE 360[®] herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT apply using aerial application equipment

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

Table 9: Weed control in canola with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.825 – 1.875	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, wild buckwheat*, shepherd's purse*, cow cockle*, night-flowering catchfly*, smartweed*, storksbill*, flixweed*, narrow-leaf hawk's beard*, roundleaf, mallow* * *</p> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sowthistle, dandelion</p> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sowthistle* * * *</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure. Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use the 1.25 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd's purse, cow cockle and night-flowering catchfly at the 1-3 leaf stage of the crop or for control of smartweed at the 4-6 leaf stage.</p> <p>** A single application at the 1.25 L/ha rate is required. *** Sequential applications at the 1.25 L/ha rate are required. **** Sequential applications at the 1.25 L/ha rate are required or a single application of 1.875 L/ha.</p> <ul style="list-style-type: none"> • For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. • Maximum 2.5 L/ha is allowed for the post emergence use.

TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in glyphosate tolerant canola (i.e., varieties with the Roundup Ready Gene), apply a tank mixture of 0.28 L/ha of Lontrel[®] 360 with 1.25 L/ha of FLAME GLYPHOSATE 360[®] Herbicide, in 100 litres of water per hectare. Apply when canola is in the 2-6 leaf stage. Refer to the Lontrel[®] 360 and to the FLAME GLYPHOSATE 360[®] Herbicide labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

Lontrel[®] is a registered trademark of Dow AgroSciences LLC.

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

WARNING: APPLY FLAME GLYPHOSATE 360[®] HERBICIDE ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIRCRAFT

Table 10: Weed control in soybean with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Use 100-200 L/ha water volumes)
2.5	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's thumb, Pennsylvania smartweed, eastern black flowering nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, milkweed*, yellow nutsedge*, fall panicum, wild proso millet	A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. This second application must be made no later than the flowering stage of the soybean. *Suppression only
2.5 (x2)	First trifoliolate leaf stage through flowering	Perennial sowthistle, Canada thistle, wire-stemmed muhly	A second (sequential) application of 2.5 L/ha will improve control in heavy weed infestations. If sequential applications of 2.5 L/ha are used they should be at least 2 weeks apart for best results on perennial weeds. This second application must be made no later than the flowering stage of the soybean. Perennial sowthistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. Wire-stemmed muhly should be 10-20 cm in height and actively growing. Plants not fully emerged at the time of application will escape the treatment.

Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

Tank Mixtures for Roundup Ready Soybeans

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit® herbicide may be tank mixed with FLAME GLYPHOSATE 360® herbicide at a rate of 2.5 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit® and apply up to and including the 3rd trifoliate leaf stage of the Roundup Ready soybeans in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit® as per instructions on the Pursuit® label and then add FLAME GLYPHOSATE 360® herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of FLAME GLYPHOSATE 360® herbicide and Pursuit® herbicide on glyphosate tolerant soybeans.

Only one application per season of FLAME GLYPHOSATE 360® herbicide at 2.5 litres per hectare tank mixed with Pursuit® herbicide at 0.16 to 0.21 litres per hectare is permitted.

Refer to the Pursuit® herbicide label for further safety precautions and handling instructions.

NONCROPLAND AND INDUSTRIAL USES

When applied as recommended under the conditions described, FLAME GLYPHOSATE 360® will control weeds in the non-cropland and industrial uses as listed in the WEED CONTROL IN NONCROPLAND, INDUSTRIAL USES chart.

TURFGRASS

FLAME GLYPHOSATE 360® may be applied to control existing vegetation prior to turf grass establishment or renovation. **DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.**

Where existing vegetation is growing under field or unmowed conditions, apply FLAME GLYPHOSATE 360® to actively growing weeds at the growth stages given in the charts on ANNUAL and PERENNIAL WEED CONTROL. Where the vegetation is growing under mowed turf grass management, apply FLAME GLYPHOSATE 360® after omitting at least one regular mowing to allow sufficient growth for good spray interception and translocation into underground plant parts.

Tillage or renovation techniques, such as vertical mowing, coring or slicing, should be delayed for 7 days after application to allow proper translocation into the underground plant parts. Delay establishment of the turfgrass to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient weed regrowth must be attained prior to application.

AVOID ALL CONTACT WITH DESIRABLE VEGETATION IN THE VICINITY OF THE RENOVATION OR ESTABLISHMENT AREA.

TREE INJECTION APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Trees may be controlled if FLAME GLYPHOSATE 360[®] is injected directly into the trunk using suitable equipment that penetrates into the living tissue.

FLAME GLYPHOSATE 360[®] is to be used at a rate of 1 mL (undiluted product) per 10 cm of trunk diameter at chest height. The injections should be spaced evenly around the tree and below any major branches. Application may be done during periods of active growth and full leaf expansion.

Control of trees greater than 20 cm may not be acceptable. Total control may not be evident for 1-2 years following treatment. This treatment will only provide suppression of big-leaf maple; late fall application will provide optimum suppression of big-leaf maple.

CUT STUMP APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Application must be made using low-pressure equipment (i.e. squirt bottle). Apply FLAME GLYPHOSATE 360[®] immediately to the surface of the freshly cut stump (i.e. within 5 minutes) at a rate of 0.5 mL FLAME GLYPHOSATE 360[®] for every 5 cm of trunk diameter at chest height. Treat only the cambial tissues (outer edge) of the cut surface. Do not treat the central area of the stump, or exposed roots or bark. This treatment may be made at any time of year, except during heavy sap flow or when freezing temperatures prevent application of FLAME GLYPHOSATE 360[®]. A water-soluble dye added to the solution may be used as a treatment indicator. Total control may not be apparent until 1-2 years after treatment.

WOODY BRUSH AND TREES (FOLIAR APPLICATIONS)

Spray coverage should be uniform and complete. Do not spray to the point of run off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on the target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

For woody brush and trees, apply 3 to 6 litres of FLAME GLYPHOSATE 360[®] per hectare. Use ground boom or boomless equipment, or apply as a 1 to 2% solution using hand held high volume equipment. Use the 6 L/ha rate for maple, alder and willow* species, as well as hard to control perennial weed species. (* Suppression only).

INDUSTRIAL SITES, RIGHTS-OF-WAY, RECREATIONAL AND PUBLIC AREAS

FLAME GLYPHOSATE 360[®] may be applied to control brush, trees, and annual and perennial weeds listed on this label **in industrial and rights-of-way areas, such as:** railways, forest roadsides, pipelines, highways, pumping stations, petroleum tank farms, telephone and power rights-of-ways, etc., **and in recreational and public areas, such as:** parks, golf courses, schoolyards, airports and other public areas.

NOTE: For all industrial sites, rights-of-ways, recreational and public areas, repeat treatment may be necessary to control regeneration or new growth.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

GROUND APPLICATION FOR ALL NON-CROPLAND USES:

For woody brush and trees, apply FLAME GLYPHOSATE 360® at 3 to 6 L/ha using ground boom, or boomless, or mist blower equipment. Or, apply as a 1 to 2% solution using hand-held high-volume equipment. Use the higher rate for maple, alder and willow* species, and for hard to control perennial weeds (*suppression only). Apply as directed to foliage of actively growing vegetation. Spray coverage should be uniform and complete. Do not spray to the point of runoff, or allow spray drift to contact desirable vegetation as severe injury or destruction may occur.

Mowed or tilled weeds should be allowed to reach optimum growth stage at time of application.

DO NOT APPLY UNDER WIND OR OTHER CONDITIONS THAT ALLOW DRIFT.

AERIAL APPLICATION: FOR INDUSTRIAL RIGHT-OF-WAY ONLY:

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Use Precautions

Directions for Use:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical-resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing

ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a spray volume of 30-100 L/ha

Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of FLAME GLYPHOSATE 360[®] accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion. For woody brush and trees, apply 3-6 L/ha. Use 6 L/ha for maple, alder and willow* species, and for hard to control perennial weed species. Use the recommended rates of the herbicide in 30 to 100 litres of water per hectare. As density of vegetation increases, spray volume should be increased within the allowed range to ensure complete coverage. (*suppression only)

PURPLE LOOSESTRIFE CONTROL

- **DO NOT TREAT PLANTS OVER OPEN WATER.** FLAME GLYPHOSATE 360[®] herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using handheld equipment, spray-to-wet.
- For wiper applications, see WIPER, WICK AND ROLLER EQUIPMENT section.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

Table 11: Weed control in non-cropland areas, and industrial uses

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Annual grasses and broad leaf weeds	2.25-3.5	50 - 100	1	Treat actively growing weeds.
Perennial Weeds	2.5	50 - 300	1	Treat actively growing weeds. Add 0.5% v/v of a recommended surfactant when using more than 150 L of water (see MINIMUM AND ZERO TILLAGE TANK MIXES) Use higher rate for heavy infestations and for long term control.
Quackgrass	4.75-7.0	50 - 300	2	
Canada thistle (bud stage)	4.75-7.0	100 - 300	2	
Purple loosestrife	6.0	300 – 600	1-2 (or 33% for wiper application)	
Other perennials	7.0-12	100 – 300	2	
Brush and Trees Birch, Cherry, Poplar, Western Snowberry, Willow	3.0-6.0	100-300	1-2	Summer through early fall.
Maple, Raspberry/ Salmonberry, Alder	6.0	100 – 300	2	Late summer through fall. Fall is optimum.
Turfgrass renovation: Annual & Perennial Weeds	2.5 – 12.0	100 – 300	1-2	Use higher end of rate range for perennials.

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Roadside vegetation (1-2 metres wide along shoulder)	1) 0.75 – 1.0 + 1.25 – 2.5L DyCleer 480® Agricultural Herbicide OR 2) 0.75 – 1.0 + 0.30L DyCleer 480® Agricultural Herbicide + 1.2L 2,4-D amine 500	25 – 150	–	Refer to tank mix section on product labels for specific weeds controlled. Refer to chart on ANNUAL WEED CONTROL for rates for specific weeds. For different 2,4-D formulations, adjust the rate accordingly. Do not apply to standing water.
Residual Control Annual & Perennial weeds.	2.5 – 12 + 4.0 – 9.0 L Simadex® Flowable	200 – 400	–	This tank mix will provide season-long control of most germinating broadleaf weeds and grasses, and may also provide post- emergent control of certain annual weeds. Do not apply to coarse, sandy soil or gravelly soil. One application per year. Use the most restrictive label directions for each product in the mix.

Table 12: Weed control in tree, vine and berry crops

CROP	RATE (L/Ha)	PRE-HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Apples, apricot, cherry (sweet/sour), peaches, pears, plums	2.25-12 (directed spray)	30	3	Annual and perennial weeds	Apply as directed spray with no more than 275 kPa pressure.
Apples, grapes	Tank Mix 2.25-12 + simazine 2.0-4.5 kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long pre-emergent control. Do not apply to coarse, sandy or gravelly soil. Use the more restrictive label directions for each product in the mix. DO NOT apply to orchards established less than 1 year or vineyards established less than 3 years. Simazine 80W [®] rate is equivalent to 2.25-5.0 kg/ha Princep Nine-T [®] , or 4.0-9.0 L/ha Simadex [®] .
Grapes	2.25-12 (directed spray)	14	3	Annual and perennial weeds	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. Do not apply to vines that have been established less than 3 years.
Highbush (cultivated) blueberry	2.8-5.6 (directed spray)	30	1	Quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	1-2% solution (spot treatment)	Apply in non-bearing year only	1	Wood brush	Apply as directed spray in mid-summer of the vegetative (non-bearing) year. See AGRICULTURAL AND CROPLAND USES section for instructions on spot treatments.

CROP	RATE (L/Ha)	PRE- HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Filberts, hazelnut (established plantations)	2.25-3.5 (directed spray)	14	-	Annual weeds	Use as directed spray, with no more than 275 kPa pressure.
Walnut, chestnut, Japanese chestnut	2.25-12 (directed spray)	-	2	Annual and perennial weeds	Apply late spring and fall, post-harvest but prior to a killing frost. Apply in 200-300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 2% wiper solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Cranberry	20% Solution (1L FLAME GLYPHOSA TE 360® + 4 L water)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Strawberry	1-2% Solution (spot treatment) 33% solution (wiper applicator)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage. See AGRICULTURE AND CROPLAND USES section for instructions on spot treatments. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.

Table 13: Annual weed control

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or boomless	Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer canola, wild mustard, lady's thumb, stinkweed	Weeds up to 8 cm in height	0.75	50-100	For wild oats apply at 1 to 3 leaf stage. Add 350 mL of a surfactant registered for use such as Agral 90®, Ag-Surf®, and Companion™. For heavy wild oat infestations use 1.0 L/ha rate.
	All annual grasses listed above plus foxtail barley* (suppression only) All annual broadleaf weeds listed above plus flixweed** and kochia**.	Weeds 8 cm to 15 cm	1.0	50-100	Add 350 mL of Surfactant registered for use as listed above. *Apply before initiation of seed head or senescence of the lower leaves. **Suppression only. Refer to higher rates of this table.
	All annual grasses listed above plus downey brome, giant foxtail and Persian darnel. All annual broadleaf weeds listed above plus lamb's quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, narrow-leaf hawk's beard***	Weeds up to 15 cm in height	1.25-1.9	50-100	No additional surfactant required. *DO NOT use these rates on plants greater than 8 cm in height. **For 3 to 4 leaf stage use 1.9 L/ha rate. ***For weeds 8 cm to 15 cm in height use 1.9 L/ha.
	All annual grasses listed above plus crab grass and annual blue grass. All annual broadleaf weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch	Weeds up to 15 cm in height	2.25	50-100	
	All annual grasses and broadleaf weeds listed above.	Weeds over 15 cm in height	3.5	50-100	

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Wipers and wicks	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	This mixture is a 33% solution. Contact point for wiper or wick must be at least 5 cm above desirable vegetation. In severe weed infestations, reduce ground speed to ensure adequate control. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	0.5- 1.0	10	This mixture is a 5- 10% solution. Roller speed 50-150 rpm. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications.

Table 14: Perennial weed control

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or Boomless	Alfalfa	Early bud to full bloom stage. Fall Applications only.	3.7-5.0	50-300	Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see ALFALFA CONTROL WITH 2,4-D TANK MIX section under SPECIAL NOTES FOR PERENNIAL WEED CONTROL section.
Boom or Boomless	Canada thistle	Bud stage or beyond	4.75 - 7.0	100-300	Allow 5 days after application before tillage. Heavy frost prior to application may decrease control.
		Rosette stage (summer fallow)	2.5	50-100	Apply in clean water using flat fan nozzles. Ensure proper growth stage by performing last summer fallow tillage between July 5 and August 1st. Allow regrowth for a minimum of 5 weeks to reach rosette stage and a minimum of 15 cm in diameter. Allow 10 days after application before tillage. Treatment after a mild frost is possible if leaves are still green and actively growing but not after heavy damaging frost.
Boom or Boomless	Dandelion	Up to 15 cm. in height	2.5	50-100	Allow 3 or more days after treatment before tillage for all rates. Use the higher rates when infestations are heavy.
		Over 15 cm. in height	3.7	50-300	Refer to DANDELION notes in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. Allow 7 or more days after treatment before tillage.
		Rosette to full bloom (preharvest)	2.5	50-100	For more information, see PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, AND DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Foxtail barley	Seeding to heading	2.5-5	50-100	Allow a minimum of 1 day after treatment before tillage or seeding. Use higher rates for larger more established plants, heavy infestations, or if plants are stressed.
Boom or Boomless	Common Milkweed	Bud to full bloom	2.5	50-100	Reduced results may occur if sprayed after full bloom. Milkweed may not all be in the correct stage, therefore, repeat treatments

EQUIPMENT	WEEDS CONTROLL ED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
		(preharvest) Bud to full bloom	12	100-300	may be required. Repeat treatment may be required. Allow 7 days or more after application before tillage. See PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Toadflax	Vegetative stage (summer fallow) Bud to full bloom (pre-harvest)	2.5	50-100	Apply in clean water using flat fan nozzles. Allow 7 or more days after treatment before tillage in summer fallow. For more information, see Summer fallow Control under TOADFLAX in SPECIAL NOTES FOR PERENNIAL WEED CONTROL section, or PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Quack grass control, light to moderate infestations	3 to 4 green leaves or more	2.5	50-300	Apply in clean water using flat fan nozzles. Allow 3 or more days after treatment before tillage. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. For higher water volumes (ie.,150- 300L/ha) an approved surfactant must be added at 0.5 L per 100L of clean water. (0.5% v/v). Refer to list of surfactants in QUACKGRASS part of SPECIAL NOTED FOR PERENNIAL WEED CONTROL section. See also below.
	Quack grass (long term control, heavy infestations, high water volumes)	3-4 green leaves or more	2.5 - 7.0	50 - 300	Allow 3 or more days after treatment before tillage. Rates higher than 2.5L/ha will provide more consistent, longer term control especially with heavy infestations and/or higher (150-300 L) water volumes. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information.

EQUIPMENT	WEEDS CONTROLL ED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
	Other perennial weeds	Early heading or early bud stage (See VEGETATION CONTROLLED section)	7-12	100-300	Use higher rate for weeds beyond 8 cm in height or in heavy weed infestation. Allow 7 days after application before tillage. FLAME GLYPHOSATE 360® rate is equivalent to 70 to 120 mL/100 m2.
	Woody brush and trees	Actively growing from June through August	3-6	100-300	Use higher rate for maple, alder, Rubus species and willow*. Spray to wet.
High volume or knapsack	Woody brush and trees	Actively growing from June through August	1-2.0	100	This mixture is a 1 to 2% solution. Use higher rate for maple, alder, Rubus species and willow*. Spray to wet. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on high volume or knapsack applications.
Wipers and wicks	Perennial weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual and perennial weeds	Weeds to be at least 15 cm above desirable vegetation	0.5-1.0	10	This mixture is a 5-10% solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications. This treatment will only suppress perennial weeds contacted. Roller speed 50-150 rpm.
Tree Injection	Trees*	During periods of active growth and full leaf expansion except during periods of heavy sap flow.	0.5 mL/ 5 cm of trunk diameter at chest height	None	Suitable equipment must be used to penetrate to living tissue. Space applications evenly around the circumference of the trunk below major branches. Control of trees with trunk diameters greater than 20 cm may not be acceptable. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on TREE INJECTION APPLICATIONS. *Suppression only for willow.

SPECIAL NOTES FOR PERENNIAL WEED CONTROL

QUACKGRASS

For **season-long control on fall tilled ground**: Apply 2.5 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SURFACTANTS

The following is a list of approved surfactants for use with FLAME GLYPHOSATE 360[®] Herbicide for control of quackgrass:

Agral 90[®]
Companion[™]
Ag-Surf[®]

Always refer to surfactant label for specific instructions regarding use of that product.

CANADA THISTLE

Control of Canada thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

FLAME GLYPHOSATE 360[®] HERBICIDE PLUS BANVEL[®] OR ORACLE[®] TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summer fallow or in postharvest stubble, apply 1.7 litres per hectare FLAME GLYPHOSATE 360[®] Herbicide plus 1.25 litres per hectare Banvel[®] or Oracle[®] in 100-200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90[®], Ag-Surf[®]

or Companion™. For best results in summer fallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

TOADFLAX

Control of Toadflax in a Summer Fallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 10th and July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are a minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 2.5 to 5.0 litres per hectare FLAME GLYPHOSATE 360® Herbicide and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 2.5 to 5.0 litres per hectare FLAME GLYPHOSATE 360® Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14-day interval between application and planting is required.

Use the higher FLAME GLYPHOSATE 360® Herbicide rates when perennial grasses are prevalent.

ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to **PERENNIAL WEED CONTROL WITH FLAME GLYPHOSATE 360 HERBICIDE®** table.

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow up tillage after application should be delayed 5 to 7 days for best results. See **ANNUAL AND PERENNIAL WEED CONTROL** tables for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required to control weeds regenerating from seeds or other underground parts.

Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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Aatrex Nine-O®, Agral®, DyCler®, Princep Nine-T® are the registered trademarks of Syngenta Group Company

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Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33322
Product Name :	FBN QUINCLORAC
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2019-01-11
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2020-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	QUINCLORAC 3,7-dichloroquinoline-8-carboxylic acid CASN = 84087-01-4 (GUAR = 75 % NOMINAL)

Date Modified: 2020-08-31

FBN Quinclorac

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass and suppression of annual and perennial sow-thistle in spring and durum wheat, spring barley, canary seed, canola, **Clearfield** canola quality *Brassica juncea*, and tame mustard (brown and oriental).

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

COMMERCIAL (AGRICULTURAL)

DRY FLOWABLE

ACTIVE INGREDIENT: Quinclorac 75% DF

REGISTRATION NO.: 33322 *PEST CONTROL PRODUCTS ACT*

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT,
CALL COLLECT DAY OR NIGHT 1-613-996-6666**

CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc. PO
Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg – 10 kg

GENERAL INFORMATION

FBN Quinclorac is a dry flowable herbicide for selective post-emergence control of green foxtail (including Group 1 and Group 3 resistant biotypes), volunteer flax, cleavers, and barnyard grass in hard red spring, Canadian prairie spring, durum, Canada Western extra strong wheats, spring barley and canary seed, canola (*Brassica napus* – all varieties, including conventional, **Clearfield**®, LibertyLink® and Roundup Ready®), **Clearfield** canola quality *Brassica juncea* (e.g. canola quality *Brassica juncea* varieties with the **Clearfield** trait) and brown and oriental tame mustard.

FBN Quinclorac is a herbicide with mainly systemic action. Uptake into the plant occurs through both the foliage and root system. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in inconsistent control of weeds growing underneath.

Visual symptoms of weed control of **FBN Quinclorac** may take up to two weeks following application to develop. These symptoms include initial twisting to stunting, reddening and chlorosis about 14 days followed by necrosis and death about 21 days after application. Even though **FBN Quinclorac** symptoms may take some time to develop, competition from the weeds treated with **FBN Quinclorac** is eliminated soon after application.

DIRECTIONS FOR USE

Application Rate and Timing for Wheat, Spring Barley and Canary Seed

DO NOT APPLY BY AIR.

Apply **FBN Quinclorac** at 135-165 g/ha when weeds are small and actively growing. **FBN Quinclorac** will control the weeds at the timing detailed in **Table 1**. **FBN Quinclorac** can be applied to wheat, spring barley and canary seed at the maximum application rates and timing detailed in **Table 1**.

Use the 135 g/ha rate ONLY for control of volunteer flax, barnyard grass, cleavers, lighter infestations of green foxtail and suppression of annual and perennial sow-thistle. Use the higher rate of 165 g/ha for control of heavier infestations of green foxtail. (Do not use the 165 g/ha rate on barley.) **Use only the 135 g/ha rate when applying FBN Quinclorac to spring barley.**

Improved cleavers control in canola may be accomplished using a rate of 62 g/ha when tank mixed with Liberty 150 SN Herbicide at a rate of 3.33 L/ha on Liberty Link Canola, or with glyphosate products (360 g/L acid equivalent (ae) isopropylamine salt formulations or 540 g ae/L potassium salt formulations) at a rate of 667 g ae/ha on Roundup Ready Canola. All glyphosate products must be registered for post-emergent use on glyphosate tolerant canola varieties. Application should be made from the 2 to 6 leaf stage of the canola crop when cleavers are between the cotyledon to 3 whorls stage.

DO NOT apply **FBN Quinclorac** to any field more often than every second year. This practice must be respected in order to avoid potential injury to future rotational crops, to minimize the potential for carryover and accumulation of soil residues, and to reduce the selection pressure which could contribute to the development of resistant biotypes.

Early treatment of weeds with **FBN Quinclorac** is important to maximize crop yield potential through elimination of early weed competition. Some initial crop injury may be observed after application, but this is usually outgrown and should not affect crop yield.

Crop	Use Rate (g/ha)	Preharvest Interval (days)
Canola ¹ , Clearfield canola quality <i>Brassica juncea</i> , and tame mustard (brown and oriental)	135	60
Wheat (spring and Durum) and canary seed	135-165	77
Spring barley	135	80

¹*Brassica napus* – all varieties, including conventional, **Clearfield**, LibertyLink and Roundup Ready.

TABLE 1: WEED AND CROP APPLICATION TIMING TABLE

WEED	TRUE LEAF RANGE
Green foxtail	1 - 5 leaf (max 2 tillers)
Volunteer flax	1 - 8 cm.
Cleavers	1 - 3 whorls
Barnyard grass	1 - 5 leaf
Annual sow-thistle*	2 – 6 leaf
Perennial sow-thistle*	2 – 6 leaf
CROP	
Spring barley**	1 – 4 leaf (prior to tillering)
Wheat (spring and durum)	1 - 5 leaf
Canola ¹	2 - 6 leaf
Canary seed***	3 – 5 leaf
Clearfield canola quality <i>Brassica juncea</i>	2 - 6 leaf
Brown and oriental tame mustard	2 - 6 leaf

*Suppression only.

Maximum rate for barley is 135 g/ha. To avoid crop injury, apply **FBN Quinclorac before spring barley tillers.

***Not to be used for human consumption or fed to livestock.

¹*Brassica napus* – all varieties, including conventional, Clearfield, LibertyLink and Roundup Ready.

SPRAYING INSTRUCTIONS

Ground Application

Use sprayers equipped with standard flat fan pesticide nozzles with a spray volume of 100 L/ha at a constant pressure of 275-425 kPa. Tilt spray nozzles 45 degrees forward to ensure better coverage. The use of 50 mesh strainers and screens is recommended.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) fine classification. Boom height must be 60 cm or less above the crop or ground.

ADDITIVES

Always use **MERGE** adjuvant at 1.0% v/v for optimum performance of **FBN Quinclorac**.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

TANK MIX COMBINATIONS (BARLEY, WHEAT AND CANARY SEED APPLICATIONS ONLY):

For the appropriate rate of **FBN Quinclorac**, refer to the Application Rate and Timing section of the label.

Broadleaf Weed Control

Although **FBN Quinclorac** provides control of several broadleaf weeds, a tank mix with a broadleaf compound is required to give broad spectrum broadleaf weed control in wheat.

For additional control of broadleaf weeds in barley and wheat, **FBN Quinclorac** can be tank mixed with any of the broadleaf herbicides listed in **Table 2**. When tank mixing **FBN Quinclorac** with these broadleaf herbicides, a slight reduction in control of green foxtail may be observed. The level of green foxtail control may be improved by using the 165 g/ha rate of **FBN Quinclorac** in the tank mixture for wheat only.

Refer to **Table 2** for appropriate use rates and timing of crop applications. Always refer to the labels of all tank mix partners and observe the most restrictive application directions, restrictions, precautions and personal protective equipment of all tank mix partners.

TABLE 2: TANK MIX OPTIONS FOR FBN QUINCLORAC ON BARLEY, WHEAT, AND CANARY SEED

Crop	FBN Quinclorac Rate (g/ha)	Tank Mix Partner	Rate	Crop Stage	Weeds Controlled
Barley	135	MCPA Amine (assume 500 series)	1.1 L/ha	3-4 leaf	FBN Quinclorac – see Table 1. Broadleaf weeds listed on MCPA Amine label.
		MCPA Ester (assume 500 series)	1.1 L/ha	3-4 leaf	FBN Quinclorac – see Table 1. Broadleaf weeds listed on MCPA Ester label.
		Buctril M	1.0 L/ha	2-4 leaf	FBN Quinclorac – see Table 1. Broadleaf weeds listed on Buctril M label.
		Refine Extra¹	20 g/ha	2-4 leaf	FBN Quinclorac – see Table 1. Broadleaf weeds listed on Refine Extra label.
Wheat (spring and durum)	135-165	Buctril M	1.0 L/ha	2-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on Buctril M label.
		2,4-D Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on

		2,4-D Ester (assume 500 series)	0.840-1.1 L/ha	4-5 leaf	2,4-D Amine label. FBN Quinclorac - see Table 1. Broadleaf weeds listed on 2,4-D Ester label.
		MCPA Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on MCPA Amine label.
		MCPA Ester (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on MCPA Ester label.
		Refine Extra¹	20 g/ha	2-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on Refine Extra label.
		Express Pack¹ (Express + 2,4-D)	10 g/ha + 0.625 L/ha	3-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on Express Pack label.
Canary seed ²	135	Buctril M	1.0 L/ha	3-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on Buctril M label.

¹ Addition of surfactants other than Merge adjuvant is not required.

² Avoid over application.

Do not delay spraying broadleaf weeds if grassy weeds are not in the correct stage for treatment. If green foxtail, wild oats and broadleaf weeds are not in the correct stages for treatment, apply separate applications of each herbicide timed to control the required spectrum of weeds. Use **MERGE** adjuvant only with all tank mixtures.

RECROPPING

Due to the residual activity of **FBN Quinclorac** in the soil, land treated with **FBN Quinclorac** cannot be rotated to crops other than specified in **Table 3**. To avoid injury to rotational crops, the minimum recropping intervals in **Table 3** must be followed.

TABLE 3: MINIMUM RECROPPING INTERVALS

CROP	MINIMUM RECROPPING INTERVAL (Months)	NOTES
Wheat* (spring, durum) Spring barley* Canola *	0 0 0	These crops can be re-planted in the same season as FBN Quinclorac applications.
Field peas Sunflowers	10 10	These crops and the crops listed above can be planted the year following application of FBN Quinclorac .
Oats	12	These crops and the crops listed above can be planted the year following application of FBN Quinclorac .

Flax Lentils	10 10	These crops and the crops listed above can be planted the year following application of FBN Quinclorac .
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*In the event of crop failure, only canola, spring or durum wheat or spring barley may be reseeded in fields treated with **FBN Quinclorac**.

FBN Quinclorac should not be used on land where potatoes or vegetables are part of the rotation.

The company recommends that a field bioassay (a test strip grown to maturity) be conducted the year before growing any crops other than those listed in **Table 3**.

On lighter soils with low organic matter or under dry conditions, some crop injury may occur particularly in flax and lentils but will not reduce yield. Under these conditions, the minimum recropping interval for flax and lentils should be extended by 12 months.

Refer to the broadleaf herbicide label for specific additional recropping restrictions.

RESTRICTIONS AND LIMITATIONS

1. Do not apply **FBN Quinclorac** when weather conditions may cause spray drift from treated areas to adjacent crops. Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes and vegetables will be injured by spray drift of **FBN Quinclorac**.
2. Do not apply **FBN Quinclorac** to wheat, spring barley and canary seed under seeded to forages.
3. Do not apply **FBN Quinclorac** to wheat, spring barley, canary seed, canola, **Clearfield** canola quality *Brassica juncea* or tame mustard that has been subjected to stress from conditions such as frost, hail damage, flooding, drought, extended cold period, etc.
4. Rainfall within 6 hours after application may reduce effectiveness of spray.
5. When **FBN Quinclorac** is applied beyond the recommended growth stages, limited crop injury and/or unsatisfactory weed control may result.
6. Cool weather conditions or drought will delay **herbicide** activity and if prolonged, may result in poor weed control.
7. Do not use **FBN Quinclorac** with additives, pesticides or fertilizers not specifically recommended on this label.
8. Allow 4 days between application of **FBN Quinclorac** and any other chemical not recommended as a tank mix combination on this label.
9. **FBN Quinclorac** must not be applied within 77 days of harvest of canary seed and wheat, within 60 days of harvest of canola and within 80 days of harvest of spring barley.
10. Spring barley treated with **FBN Quinclorac** is NOT TO BE USED FOR HUMAN CONSUMPTION.
11. Canary seed treated with **FBN Quinclorac** is NOT TO BE USED FOR HUMAN CONSUMPTION OR FED TO LIVESTOCK.

12. Apply using ground equipment only. DO NOT APPLY BY AIR.
13. Overspray or drift into important wildlife habitats such as shelterbelts, wetlands, woodlots, vegetated ditch, ponds and lake banks and other cover on the edges of fields should be avoided. A 10-metre buffer zone should be observed adjacent to aquatic habitats such as streams, ponds, rivers and lakes and to areas that drain into these habitats. When a tank mixture is used, consult the label of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.
14. Do not graze the treated crops or cut for hay within 77 days of application.
15. Grain and meal from treated canola can be fed to livestock. DO NOT graze or feed other portions of the treated canola to livestock.
16. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats.

Buffer Zones for the Protection of Terrestrial Habitats from Spray Drift of Quinclorac

Method of application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitats
Field Sprayer	Durum and spring wheat, canary seed	4
	Spring barley Canola - Brassica napus (conventional, Clearfield, LibertyLink and Roundup Ready varieties), Canola - Brassica juncea (conventional, Clearfield, LibertyLink and Roundup Ready varieties) and Tame mustard (brown and oriental)	3

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING

1. Thoroughly clean the sprayer prior to use. For appropriate cleaning instructions, refer to the label of the product sprayed previous to application of **FBN Quinclorac**.
2. Fill the clean spray tank half full with clean water. Start agitation or by-pass system. Agitation should be running during the entire mixing procedure.
3. Add the correct amount of **FBN Quinclorac** and agitate 2 to 3 minutes.

4. Add the correct amount of broadleaf herbicide if required. When mixing **FBN Quinclorac** with **EXPRESS PACK**, **EXPRESS** herbicide must be completely in suspension in the spray tank prior to adding **2,4-D** herbicide.

NOTE: On repeat tank loads of either **EXPRESS PACK** or **REFINE EXTRA** herbicide, prepare an **EXPRESS**/water or **REFINE**/water slurry in a separate container with clean water before adding to the spray tank.

5. Add the correct amount of **MERGE** adjuvant and agitate 2 to 3 minutes.
6. Add remainder of water to the spray tank and maintain sufficient agitation during mixing and spraying to ensure a uniform spray mixture.
7. For sprayer clean-up, refer to the sprayer clean-up section.
8. Consult the broadleaf herbicide label for additional application instructions, use precautions and recropping information. **SPRAYER CLEAN-UP**

Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes, tomatoes and vegetables are particularly sensitive to **FBN Quinclorac**. To avoid injury to subsequent crops other than wheat, the sprayer should be thoroughly cleaned immediately after use and prior to spraying other crops by performing the following steps:

1. Following spray application, drain any remaining spray solution, then flush the tank, boom and hoses with clean water until any visible residues are removed. (Repeat step 1, if necessary.) **DO NOT CLEAN SPRAYER NEAR DESIRABLE VEGETATION OR NEAR WELL OR WATER SOURCE.**
2. Completely fill spray tank with clean water while adding 1 litre of household ammonia (containing 3% ammonia) per 100 litres of water or a commercially licensed tank cleaner such as **FINNISH®**. Reduce the amount of ammonia added proportionally if higher concentrations (%) of ammonia are used. Flush the solution through the boom and nozzles and then add more water to completely refill the tank. Agitate the solution for at least 15 minutes and then flush the boom and nozzles until the spray tank is empty.
3. Remove the nozzles and screens and clean separately in a bucket containing a cleaning agent and water.
4. Repeat step 2.
5. Thoroughly rinse the tank with clean water and flush the water through the boom.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **FBN Quinclorac** is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to **FBN Quinclorac** and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **FBN Quinclorac** or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partners.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. May irritate the skin. Avoid contact with the skin.
3. Potential skin sensitizer.
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
8. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
9. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
10. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration

wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store in original, tightly-closed container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.

4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
5. Freezing will not harm **FBN Quinclorac**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

1. Follow provincial instruction for any required cleaning of the container prior to its disposal.
2. Make the empty container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

MERGE® is a registered trademark of BASF Canada Inc.

®All other products listed are registered trademarks of their respective companies.

FBN Quinclorac

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass and suppression of annual and perennial sow-thistle in spring and durum wheat, spring barley and canary seed, canola, **Clearfield** canola quality *Brassica juncea*, and tame mustard (brown and oriental).

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

COMMERCIAL (AGRICULTURAL)

DRY FLOWABLE

ACTIVE INGREDIENT: Quinclorac..... 75% DF

REGISTRATION NO.: 33322 *PEST CONTROL PRODUCTS ACT*

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL COLLECT DAY OR NIGHT
1-613-996-6666**

CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. May irritate the skin. Avoid contact with the skin.
3. Potential skin sensitizer.
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
8. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
9. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
10. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
11. **As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.**

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store in original, tightly-closed container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
5. Freezing will not harm **FBN Quinclorac**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

1. Follow provincial instruction for any required cleaning of the container prior to its disposal.
2. Make the empty container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33323
Product Name :	FBN CLODINAFOP
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2019-01-11
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2024-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	CLODINAFOP-PROPARGYL PIN prop-2-yn-1-yl (2R)-2-{4-[(5-chloro-3-fluoropyridin-2-yl)oxy]phenoxy}propanoate IUPAC prop-2-ynyl (R)-2-[4-(5-chloro-3-fluoro-2-pyridyloxy)phenoxy]propionate CASN = 105512-06-9 (GUAR = 240 g/l NOMINAL)

Date Modified: 2020-08-31

GROUP	1	HERBICIDE
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FBN CLODINAPOP
Emulsifiable Concentrate

AGRICULTURAL

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES, OKANAGAN AND CRESTON FLATS
REGIONS AND INTERIOR OF BRITISH COLUMBIA (INCLUDING THE PEACE RIVER
REGION) ONLY.**

A post emergence herbicide for control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian dandelion and volunteer canary seed in Spring wheat and Durum wheat.

ACTIVE INGREDIENT:

Clodinafop-propargyl.240 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING.
KEEP OUT OF REACH OF CHILDREN.

CAUTION



POISON

WARNING: EYE & SKIN IRRITANT

Warning, contains the allergen epoxidized soybean oil

REGISTRATION NO.: 33323 PEST CONTROL PRODUCTS ACT

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

NET CONTENTS: **1.84L, 3.68L, 4.7L, 14L, 15L, 55L, 200L, 450L, 1100L, Bulk**

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

This product contains a PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING. Vomiting may cause aspiration pneumonia. Treat symptomatically for ingestion and/or skin and eye contact.

PRECAUTIONS

- CAUTION – POISON
- WARNING – EYE AND SKIN IRRITANT
- KEEP OUT OF THE REACH OF CHILDREN.
- Harmful if swallowed.
- May irritate eyes. Do not wear contact lenses when using.
- DO NOT get in eyes or on skin. Avoid contact with clothing. Wear coveralls or long-sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.
- Remove contaminated clothing immediately after use. Store and wash contaminated

- clothing separately from household laundry before reuse. Wash thoroughly with soap and water after handling. Handle and apply only as recommended on this label.
- Do not eat, drink or smoke while mixing, loading or during application.
 - Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours after application.

ENVIRONMENTAL PRECAUTIONS

This product contains aromatic petroleum distillates which are toxic to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic material such as clay).

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorized persons and animals. Store separate from food, feed, and fertilizer.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

For information on disposal of unused, unwanted product, contact the provincial regulatory authorities, manufacturer or Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills or call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

CONTAINER DISPOSAL:

For recyclable containers:

Do not reuse this container for any purpose. This is a recyclable container, and may be disposed of at a container collection site. For details on collection and disposal of containers contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of

purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

**IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL OR POISONING, CALL
613-996-6666 (collect) OR *666 (cell).**

FBN CLODINAFOP
Emulsifiable Concentrate

AGRICULTURAL

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES, OKANAGAN AND CRESTON FLATS
REGIONS AND INTERIOR OF BRITISH COLUMBIA (INCLUDING THE PEACE RIVER
REGION) ONLY.**

A post emergence herbicide for control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian darnel and volunteer canary seed in Spring wheat and Durum wheat.

ACTIVE INGREDIENT:

Clodinafop-propargyl.240 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING.
KEEP OUT OF REACH OF CHILDREN.

CAUTION



POISON

WARNING: EYE & SKIN IRRITANT

Warning, contains the allergen epoxidized soybean oil

REGISTRATION NO.: 33323 PEST CONTROL PRODUCTS ACT

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

This product contains a PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING. Vomiting may cause aspiration pneumonia. Treat symptomatically for ingestion and/or skin and eye contact.

PRECAUTIONS

- CAUTION – POISON
- WARNING – EYE AND SKIN IRRITANT
- KEEP OUT OF THE REACH OF CHILDREN.
- Harmful if swallowed.
- May irritate eyes. Do not wear contact lenses when using.
- DO NOT get in eyes or on skin. Avoid contact with clothing. Wear coveralls or long-sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.
- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse. Wash thoroughly with soap and water after handling. Handle and apply only as recommended on this label.

- Do not eat, drink or smoke while mixing, loading or during application.
- Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours after application.

ENVIRONMENTAL PRECAUTIONS

This product contains aromatic petroleum distillates which are toxic to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic material such as clay).

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorized persons and animals. Store separate from food, feed, and fertilizer.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

For information on disposal of unused, unwanted product, contact the provincial regulatory authorities, manufacturer or Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills or call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

CONTAINER DISPOSAL:

For recyclable containers:

Do not reuse this container for any purpose. This is a recyclable container, and may be disposed of at a container collection site. For details on collection and disposal of containers contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL OR POISONING, CALL 613-996-6666 (collect) OR *666 (cell).

PRODUCT INFORMATION

FBN CLODINAFOP is a systemic, post-emergence herbicide for the selective control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian darnel and volunteer canary seed in all types of Spring wheat and Durum wheat. Do not use FBN CLODINAFOP on barley, as crop injury will occur. Do not apply this product using aerial application equipment except under conditions specified on this label.

FBN CLODINAFOP is absorbed by the leaves and is rapidly translocated to the growing points of leaves and stems. Thorough coverage of the plants is essential for consistent control. Actively growing susceptible grasses stop growing within 48 hours of treatment. Depending on species, growing conditions and crop competition, leaves and growing points turn yellow within one to three weeks after application. Further colour changes and loss of vigour will be observed, followed by a browning and complete control three to five weeks after application.

Although FBN CLODINAFOP does not control broadleaf weeds, FBN CLODINAFOP can be tank-mixed with a wide range of broadleaf herbicides to provide broad spectrum weed control in wheat. See section entitled "TANK MIXES of FBN CLODINAFOP WITH BROADLEAF WEED HERBICIDES" and refer to the appropriate Tank Mix section for ground and aerial application.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic matter such as clay.)

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.

CROPS: Spring Wheat and Durum Wheat

FBN CLODINAFOP can be used on all varieties of spring wheat and Durum wheat. Observe minimum interval to harvest of 60 days after treatment.

Do not apply on barley or any crop other than Spring Wheat or Durum wheat, as crop damage

will result. Do not allow spray to drift to adjacent fields seeded to crops other than spring wheat or Durum wheat.

Do not treat wheat underseeded to forages. Observe a minimum of three (3) days before grazing livestock on crops treated with FBN CLODINAFOP.

For use directions specific to application by air, please refer to sections on aerial application. For aerial application precautions, please refer to the precautions section.

WEEDS CONTROLLED: Wild Oats, Volunteer (Tame) Oats, Green Foxtail, Yellow Foxtail, Barnyard grass, Persian Darnel and Volunteer Canary Seed

TIMING OF APPLICATION:

TIMING	GROWTH STAGE	ADDITIONAL REMARKS
WILD OATS	1 to 6 leaf stage on main stem	Prior to emergence of 4th tiller.
VOLUNTEER (TAME) OATS	3 to 6 leaf stage on main stem	Prior to emergence of 4th tiller.
GREEN FOXTAIL AND YELLOW FOXTAIL (wild millet, pigeon grass)	1 to 5 leaf stage on main stem	For optimum control apply prior to emergence of the 3rd tiller and while foxtail is actively growing.
BARNYARD GRASS	1 to 5 leaf stage on main stem	For optimum control apply before tillering, and while barnyard grass is actively growing.
PERSIAN DARNEL	1 to 5 leaf stage on main stem	For optimum control apply before tillering, and while Persian darnel is actively growing.
VOLUNTEER CANARY SEED	1 to 6 leaf stage on main stem	Prior to emergence of 4th tiller.
SPRING WHEAT AND DURUM WHEAT	Prior to emergence of 4th tiller	When tank-mixing with a broadleaf herbicide, always refer to the label of the broadleaf partner prior to use.

- For optimum results, apply FBN CLODINAFOP to actively growing weeds. An early application will maximize crop yields by reducing weed competition. Weeds emerging after application of FBN CLODINAFOP will not be controlled.
- Weed control following application of FBN CLODINAFOP alone, or in combination with broadleaf weed herbicides, can be reduced or delayed under stress conditions such as drought, heat, insufficient fertility, flooding or prolonged cool temperatures. Grass escapes or re-tillering may occur if application is made during prolonged stress conditions. Optimum weed control will be obtained if application of FBN CLODINAFOP is delayed until the stress conditions have ended and weeds are once again actively growing.
- FBN CLODINAFOP alone can be used 30 minutes before rainfall.
- Do not apply to crop that is stressed by conditions such as frost, low fertility, drought, flooding, disease or insect damage as crop injury may result.

RATE OF USE FOR GROUND APPLICATION:

Apply the recommended rate of FBN CLODINAFOP and the recommended rate of an adjuvant of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT in a minimum of 50 to 100 L of water per hectare.

To control: WILD OATS VOLUNTEER (TAME) OATS GREEN FOXTAIL YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER CANARY SEED	To control: WILD OATS VOLUNTEER (TAME) OATS GREEN FOXTAIL YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER CANARY SEED PERSIAN DARNEL
Rates for use with 50 L/ha water	
Apply: 230 mL/ha of FBN CLODINAFOP + 400 mL/ha of (SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with 50 L/ha of water (0.8% volume/volume)	Apply: 290 mL/ha of FBN CLODINAFOP + 500 mL/ha of (SCORE or ASSIST, or CROPOIL 83/17 ADJUVANT with 50 L/ha of water (1.0% volume/volume)
Rates for use with 100 L/ha water	
Apply: 230 mL/ha of FBN CLODINAFOP + 800 mL/ha of SCORE, ASSIST or CROPOIL 83/17 ADJUVANT with 100 L/ha of water (0.8% volume/volume)	Apply: 290 mL/ha of FBN CLODINAFOP + 1 L/ha of SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with 100 L/ha of water (1.0% volume/volume)

NOTE: Always use an adjuvant of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with FBN CLODINAFOP.

RATE OF USE FOR AERIAL APPLICATION:

Apply the recommended rate of FBN CLODINAFOP and the recommended rate of an adjuvant of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT in a minimum of 30 L of water per hectare according to the following table:

To Control: WILD OATS	To Control: WILD OATS GREEN FOXTAIL YELLOW FOXTAIL PERSIAN DARNEL
Apply: 230 mL/ha of FBN CLODINAFOP + 240 mL/ha of SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with 30 L/ha of water (0.8% volume/volume)	Apply: 290 mL/ha of FBN CLODINAFOP + 300 mL/ha of SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with 30 L/ha of water (1.0% volume/volume)

NOTE: Always use adjuvants of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with FBN CLODINAFOP.

TANK MIXES of FBN CLODINAFOP WITH BROADLEAF WEED HERBICIDES – GROUND APPLICATION:

CROP: SPRING and DURUM WHEAT

TANK MIXES WITH BROADLEAF WEED HERBICIDES, IN SPRING WHEAT and DURUM

WHEAT:

For broad spectrum control of wild oats, green foxtail and broadleaf weeds, FBN CLODINAFOP can be tank-mixed with broadleaf herbicides as described in the following tables. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, recropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions and follow the more restrictive label. When tank-mixing always add the broadleaf herbicide(s) to the spray tank first; followed by FBN CLODINAFOP, with SCORE or ASSIST, or CROPOIL 83/17 ADJUVANT added last. For the appropriate rate of FBN CLODINAFOP with SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT, refer to the 'Rate of Use' section of the label.

Tank-Mix Partner	Product Rates	Crop Stage ¹
Dyvel®	1.25 L/ha	2 to 5 leaf
Refine Extra® ²	20 g/ha	2 leaf to flag leaf
Buctril® M	1.0 L/ha	2 leaf to flag leaf
Estaprop®	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Dichlorprop®-D	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Lontrel 360 tank mixed with MCPA Ester (assume 500 series)	280 to 420 mL/ha tank mixed with 1.1 L/ha	3 leaf to flag leaf
Curtail™ M	2.0 L/ha	3 leaf to just before flag leaf
Thumper® EC	1.0 L/ha	2 leaf to early flag leaf
2,4-D Amine (assume 500 series) ³	840 mL to 1.1 L/ha	3 leaf to flag leaf
MCPA Amine (assume 500 series) ³	840 mL to 1.1 L/ha	3 leaf to flag leaf
MCPA Ester (assume 500 series)	840 mL to 1.1 L/ha	3 leaf to flag leaf
Pardner®	1.0 L/ha	2 leaf to flag leaf
Ally® ²	7.5 g/ha	2 leaf to flag leaf
Attain® Herbicide Tank Mix	600 mL/ha of Attain A + 1.0 L/ha of Attain B	4 leaf to flag leaf

¹ Always consult the label of the broadleaf herbicide prior to use.

² Addition of surfactants other than Score, ASSIST, or CROPOIL 83/17 ADJUVANT is not required.

³ A reduction in control of green foxtail and wild oats may be observed when FBN CLODINAFOP is tank mixed with 2,4-D Amine and MCPA Amine.

Temporary crop injury may occur with tank-mixes under extreme weather conditions or when the crop is suffering from stress due to inadequate or abnormally high moisture level or extreme temperatures.

Do not tank-mix with any chemical additives, pesticides, or fertilizers that are not recommended on this label.

TANK MIXES OF FBN CLODINAFOP WITH BROADLEAF WEED HERBICIDES - AERIAL APPLICATION:

CROP: SPRING WHEAT and DURUM WHEAT

For broad spectrum control of wild oats, green foxtail and broadleaf weeds, FBN CLODINAFOP can be tank-mixed with Buctril M. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, recropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions and follow the more restrictive label. Use in a minimum of 30L of water per hectare.

Tank-mixes of FBN CLODINAFOP with broadleaf weed herbicides - Aerial application: When tank-mixing always add the broadleaf herbicide (Buctril M) to the spray tank first; followed by FBN CLODINAFOP, with an adjuvant of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT added last. For the appropriate rate of FBN CLODINAFOP with an adjuvant of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT refer to the 'Rate of Use for Aerial Application' section of the label.

Tank-Mix Partner	Product Rates	Crop Stage ¹
Buctril M	1.0 L/ha	2 leaf to flag leaf

¹ Always consult the label of the broadleaf partner prior to use.

BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:	
		Aquatic Habitat	Terrestrial habitat
Field sprayer*	Spring wheat and durum wheat	15	0
Aerial	Spring wheat and durum wheat	72	76

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING INSTRUCTIONS - GROUND APPLICATION:

1. Clean spray tank and half fill with clean water. Start agitation or bypass system.
2. If a broadleaf herbicide, insecticide or fungicide is to be used, add the product FIRST prior to adding FBN CLODINAFOP and agitate for 2-3 minutes.
3. Add correct amount of FBN CLODINAFOP.
4. Agitate for 2-3 minutes.
5. Add correct amount of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT.
6. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
7. After any break in spraying operations, agitate thoroughly before spraying again.
8. **Use the spray suspension as soon as it is prepared.**
9. If an oil film starts to build up in the tank, drain tank and then clean with a detergent.

SPRAYING INSTRUCTIONS - GROUND APPLICATION:

1. FBN CLODINAFOP can be applied by ground or air. For aerial application instructions, refer to the section entitled "SPRAYING INSTRUCTIONS - AERIAL APPLICATION" which follows

2. Water Volume: 50 to 100 litres per hectare when applied alone and a minimum of 100L/ha when tank-mixed with broadleaf herbicides
3. Spray Nozzles: 80° or 110° flat fan stainless steel nozzles are recommended for optimal spray coverage. Application of the spray mixture at a 45° angle in the direction of travel will result in improved spray coverage. Use 50 mesh nozzle screens. Do not use flood type nozzles, controlled droplet application equipment, spray foils or hollow cone nozzles.
4. Pressure: 275-310 kPa.
5. Apply uniformly at 6-8 km/hr and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from an over application.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call

Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

MIXING INSTRUCTIONS - AERIAL APPLICATION:

1. Fill the mixing tank 1/2 full with clean water. Start gentle agitation.
2. If a broadleaf herbicide is to be used, add the product FIRST prior to adding FBN CLODINAFOP and agitate for 2-3 minutes then add correct amount of FBN CLODINAFOP.
3. Agitate for 2-3 minutes.
4. Add correct amount of an adjuvant of either Score, Assist, or CROPOIL 83/17 ADJUVANT.
5. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
6. Fill aircraft spray tank and maintain gentle agitation while spraying.
7. After any break in spraying operations, agitate thoroughly before spraying again. Do not let contents stand without agitation.
- 8. Use the spray suspension as soon as it is prepared.**
9. If an oil film starts to build up in the tank, drain tank and then clean with a detergent.

SPRAYING INSTRUCTIONS - AERIAL APPLICATION:

1. FBN CLODINAFOP can be applied by ground or by air. For ground application instructions, refer to the section entitled "SPRAYING INSTRUCTIONS - GROUND APPLICATION" which precedes this section.
2. Water Volume - Aerial application: Minimum of 30 litres per hectare when applied alone or when tank mixed with Buctril M.
3. Ensure uniform application. To avoid uneven or overlapped application, use appropriate marking devices. Do not use human flaggers.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification, with a volume medium diameter (VMD) greater than 350 microns. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotor-span.

SPRAYER CLEAN-UP:

1. Thoroughly clean application equipment immediately after spraying. Ensure that all traces of the product are removed. The following recommendations are provided:
2. Drain and flush tank walls, boom and all hoses for ten minutes with clean water. Do not clean the sprayer near desirable vegetation, wells, or other water sources.
3. Remove the nozzles and screens and wash separately.
4. Dispose of all rinsings in accordance with provincial regulations.
5. If a broadleaf tank-mix partner is used, always check tank-mix partner label for any additional clean up procedures.

Resistance-Management Recommendations

For resistance management, FBN CLODINAFOP is a Group 1 herbicide. Any weed population may contain or develop plants naturally resistant to FBN CLODINAFOP and other Group 1 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist.

Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of FBN CLODINAFOP or other Group 1 herbicides with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted.

Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.

Monitor treated weed populations for resistance development.

Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact the company Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or at www.fbn.com

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE IN THE OKANAGAN AND CRESTON FLATS REGION OF BC:

FBN CLODINAFOP can be used for the control of wild oats, green foxtail and yellow foxtail in spring wheat and durum wheat in the Okanagan and Creston Flats Regions of British Columbia. For information on crop and weed stages, rates of application, mixing and spraying instructions and precautions see the appropriate sections elsewhere on this label.

Product names marked ® or TM are registered trademarks of their respective companies.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33646
Product Name :	FBN CLETHODIM 240
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2020-01-08
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2025-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	CLETHODIM (5RS)-2-{{(1EZ)-1-[(2E)-3-CHLOROALLYLOXYIMINO]PROPYL}-5-[(2RS)-2-(ETHYLTHIO)PROPYL]-3-HYDROXYCYCLOHEX-2-EN-1-ONE CASN = 99129-21-2 (GUAR = 240 g/l NOMINAL)

Date Modified: 2020-08-31

2020-0486 2020-03-03

FBN Clethodim 240®

Use with FBN Clethodim Adjuvant

EMULSIFIABLE CONCENTRATE POST-EMERGENCE HERBICIDE

GROUP	1	HERBICIDE
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CONTAINS CLETHODIM

POST-EMERGENCE HERBICIDE FOR CONTROL OF GRASSES IN CANOLA, FLAX (including low linolenic acid varieties), FIELD PEAS, LENTILS, DESI and KABULI CHICKPEAS, DRY BULB ONIONS, POTATOES, YELLOW MUSTARD, ORIENTAL (BROWN) MUSTARD (condiment and oilseed types), SOYBEANS, SEEDLING ALFALFA, SUNFLOWERS, DRY COMMON BEANS (*Phaseolus vulgaris* varieties only), FENUGREEK, CORIANDER, SPINACH, PRAIRIE CARNATION, Highbush Blueberry, SAFFLOWER, CRANBERRY, DILL, CARAWAY, BASIL, RED GARDEN (TABLE) BEET, PARSNIP, CARROT AND RADISH.

AGRICULTURAL

ACTIVE INGREDIENT: CLETHODIM240 g/L

REGISTRATION NO. 33646 PEST CONTROL PRODUCTS ACT

WARNING: EYE AND SKIN IRRITANT

KEEP OUT OF REACH OF CHILDREN

READ THE LABEL AND BOOKLET BEFORE USING

NET CONTENTS: 1 Litre

Product Information: 1-844-200-FARM (3276)

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7

In case of spills, poisoning or fire, telephone emergency response number CANUTEC 613-996-6666 or *666 on a cellular phone. (24 hours a day).

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. CAUSES EYE AND SKIN IRRITATION.

Avoid

contact with skin, eyes and clothing. Wash concentrate from skin or eyes immediately. Do not inhale fumes. Avoid breathing vapours or spray mist. After use, wash hands and other exposed skin. When using, do not eat, drink or smoke. Remove and launder contaminated clothing separately from household laundry before reuse. Store the container tightly closed and away from seeds, feeds, fertilizer, plants and foodstuffs.

Observe appropriate provincial buffer zones around bodies of water and wetland areas. Wear a long-sleeved shirt, long pants, rubber apron, chemical-resistant gloves, socks and rubber boots during mixing, loading, application, clean-up and repair. Gloves and rubber apron are not required during application. In addition, wear goggles/face shield during mixing/loading and when handling the concentrate.

Application is limited to agricultural crops only when there is low risk to drift to areas of human habitation or activity such as houses, cottages, schools and recreation areas, taking into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specific under DIRECTIONS FOR USE.

Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product contains aromatic petroleum distillates that are toxic to aquatic organisms.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow.

FIRST AID:

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. Danger from lung aspiration of petroleum-based solvents must be weighed against toxicity when considering emptying stomach.

STORAGE AND DISPOSAL

STORAGE: To prevent contaminant, store this product away from food or feed.

DISPOSAL:

RECYCLABLE CONTAINER DISPOSAL: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site.

Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

DISPOSAL OF UNUSED, UNWANTED PRODUCT: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FBN Clethodim 240®

Use with FBN Clethodim Adjuvant

EMULSIFIABLE CONCENTRATE POST- EMERGENCE HERBICIDE

GROUP	1	HERBICIDE
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CONTAINS CLETHODIM

POST-EMERGENCE HERBICIDE FOR CONTROL OF GRASSES IN CANOLA, FLAX (including low linolenic acid varieties), FIELD PEAS, LENTILS, DESI and KABULI CHICKPEAS, DRY BULB ONIONS, POTATOES, YELLOW MUSTARD, ORIENTAL (BROWN) MUSTARD (condiment and oilseed types), SOYBEANS, SEEDLING ALFALFA, SUNFLOWERS, DRY COMMON BEANS (*Phaseolus vulgaris* varieties only), FENUGREEK, CORIANDER, SPINACH, PRAIRIE CARNATION, Highbush BLUEBERRY, SAFFLOWER, CRANBERRY, DILL, CARAWAY, BASIL, RED GARDEN (TABLE) BEET, PARSNIP, CARROT AND RADISH.

AGRICULTURAL

ACTIVE INGREDIENT: CLETHODIM240g/L

REGISTRATION NO. 33646 PEST CONTROL PRODUCTS ACT

WARNING: EYE AND SKIN IRRITANT

KEEP OUT OF REACH OF CHILDREN

READ THE LABEL AND BOOKLET BEFORE USING

NET CONTENTS: 1 LITRE

Product Information: 1-844-200-FARM (3276)

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7

In case of spills, poisoning or fire, telephone emergency response number 613-996-6666 or *666 on a cellular phone (24 hours a day).

GENERAL INFORMATION:

FBN Clethodim 240 is a selective post-emergence herbicide for control of a broad range of grasses in canola, flax (including low linolenic acid varieties), field peas, lentils, Desi and Kabuli chickpeas, dry bulb onions, potatoes, yellow mustard, oriental (brown) mustard (condiment and oilseed types), soybeans, seedling alfalfa, sunflowers, dry common beans (*Phaseolus vulgaris* varieties only), fenugreek, coriander, spinach, prairie carnation, highbush blueberry, safflower, cranberry, dill, caraway, basil, red garden(table) beet, parsnip, carrot and radish.

FBN Clethodim 240 is to be used only with the FBN Clethodim Adjuvant.

FBN Clethodim 240 is a systemic herbicide which is translocated from the treated foliage to the growing points of the leaves, shoots and roots. Uptake into the plant is primarily through its leaves. Thorough coverage of the foliage is important for consistent grass control. Susceptible grasses that are actively growing will undergo a burn-back and colour change after treatment. Leaf foliage will first change from green to yellowish, then purplish and finally brown colour. The time required for complete control is normally 7 to 21 days following treatment, depending on growing conditions and crop competition.

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. CAUSES EYE AND SKIN IRRITATION.

Avoid contact with skin, eyes and clothing. Wash concentrate from skin or eyes immediately. Do not inhale fumes. Avoid breathing vapours or spray mist. After use, wash hands and other exposed skin. When using, do not eat, drink or smoke. Remove and launder contaminated clothing separately from household laundry before reuse. Store the container tightly closed and away from seeds, feeds, fertilizer, plants and foodstuffs. Observe appropriate provincial buffer zones around bodies of water and wetland areas. Wear a long-sleeved shirt, long pants, rubber apron, chemical-resistant gloves, socks and rubber boots during mixing, loading, application, clean-up and repair. Gloves and rubber apron are not required during application. In addition, wear goggles/face shield during mixing/loading and when handling the concentrate.

Application is limited to agricultural crops only when there is low risk to drift to areas of human habitation or activity such as houses, cottages, schools and recreation areas, taking into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specific under DIRECTIONS FOR USE.

Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product contains aromatic petroleum distillates that are toxic to aquatic organisms.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow.

FIRST AID:

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do **not** give **any** liquid to the person. Do not give anything by mouth to an unconscious person. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia.

Danger from lung aspiration of petroleum-based solvents must be weighed against toxicity when considering emptying stomach.

STORAGE AND DISPOSAL

STORAGE: To prevent contaminant, store this product away from food or feed.

DISPOSAL:

RECYCLABLE CONTAINER DISPOSAL: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site.

Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

DISPOSAL OF UNUSED, UNWANTED PRODUCT: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

DIRECTIONS FOR USE:

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

TIME OF APPLICATION:

Apply **FBN Clethodim 240** when the annual grasses and volunteer cereals are in the 2 to 6 leaf stage as specified under Application Rates of FBN Clethodim 240. Most effective control is achieved when application is made prior to tillering when annual grasses are small and actively growing.

For suppression or control of quackgrass, apply **FBN Clethodim 240** when the quackgrass is in the 2 to 6 leaf stage and 6 to 15 cm in height. Most effective results are achieved when application is made at the 3 to 5 leaf stage, when the canopy is uniform and actively growing.

FBN Clethodim 240 will be less effective when plants are stressed by lack of moisture, excessive moisture, low-temperature and/or very low relative humidity. Regrowth by tillering may occur if application is made under any of the above stress conditions. In

wide row crops, where the canopy may be slow to close, cultivation may be necessary to control grasses that emerge after treatment.

Canola, flax (including low linolenic acid varieties), field peas, lentils, potatoes, yellow mustard, oriental (brown) mustard (condiment and oilseed types), soybeans, seedling alfalfa, sunflowers, dry common beans (*Phaseolus vulgaris* varieties only), highbush blueberry, coriander, caraway, basil, red garden (table) beet, parsnip, carrot and radish are tolerant to **FBN Clethodim 240** at all stages of growth. However, the pre-harvest interval outlined in the Crop Recommendations table must be followed to avoid excessive crop residues.

For Desi and Kabuli chickpeas, apply **FBN Clethodim 240** at a maximum of one application per season before the crop reaches the 9 node stage (18 cm height maximum) and when the annual grasses and volunteer cereals are in the 2 to 6 leaf stage.

For fenugreek and dill, apply FBN Clethodim 240 post-emergence, when fenugreek and dill are in the 3 - 5 leaf stage. Apply a maximum of one application may be made per season.

For coriander or prairie carnation, apply FBN Clethodim 240 post-emergence, when coriander or prairie carnation is in the 2 - 5 leaf stage. A maximum of one application may be made per year.

For safflower, apply FBN Clethodim 240 post-emergence, when safflower is in the 6-8 leaf stage at a maximum of one application per season.

Cranberry is tolerant to **FBN Clethodim 240** at all stages of growth, however do not apply FBN Clethodim 240 between the hook stage and full fruit set.

For dry bulb onions, apply FBN Clethodim 240 post-emergence, when crops are in the 1-4 leaf stage.

APPLICATION RATES OF FBN Clethodim 240:

Rates of use are given below to control various grass species. Refer to crop section for the maximum use rate on each crop.

Grass Species	Leaf Stage	Application Rate of FBN Clethodim 240®	Application Rate of FBN Clethodim Adjuvant.
*Foxtail (green, yellow) Wild oats Volunteer cereals (wheat, barley, oats)	2-4	0.125 L/ha	0.5% v/v

Barnyard Grass Witchgrass Fall panicum Proso millet Volunteer Corn Volunteer canary grass	2-6	0.125 L/ha	0.5% v/v
Wild Oats Volunteer cereals (wheat, barley, oats) Foxtail (green, yellow) Persian darnel Crabgrass (smooth and large) Proso millet Witchgrass Fall panicum Barnyard grass Volunteer corn Volunteer canary grass Quackgrass suppression	2-6	0.19 L/ha	0.5% v/v
Quackgrass Control**	2-6	0.38 L/ha	1.0% v/v

* **FBN Clethodim 240** applied at 0.125 L/ha for the control of weeds listed in this section of the table should only be applied under the following conditions:

- Good crop stand
- Early application (as in above table, prior to tillering)
- Do not tank-mix with other pesticides
- Do not apply to volunteer winter cereals
- Light to moderate weed infestation
- Adequate moisture and fertility
- Absence of stress, good growing conditions

If any one of the above conditions are not present at the time of application, use 0.19 L/ha rate of **FBN Clethodim 240**.

**For adequate control of quackgrass use a minimum spray volume of 100 L/ha.

CROP RECOMMENDATIONS:

Crops	Maximum Application Rate of FBN Clethodim 240	Application Method⁷	Pre-Harvest Interval
Canola	0.38 L/ha	Ground and aerial application	60 days
Flax (including low linolenic acid varieties)	0.38 L/ha	Ground and aerial application	60 days
Field Peas	0.38 L/ha	Ground and aerial application	75 days
Lentils	0.38 L/ha	Ground and aerial application	60 days
Desi and Kabuli Chickpeas	0.19 L/ha	Ground and aerial application	60 days
Potatoes	0.38 L/ha	Ground and aerial application	60 days
Yellow Mustard	0.38 L/ha	Ground and aerial application	60 days
Oriental (Brown) Mustard (condiment and oilseed types)	0.38 L/ha	Ground and aerial application	60 days
Soybeans	0.38 L/ha	Ground and aerial application	75 days
Seedling Alfalfa	0.38 L/ha	Ground application only	30 days
Sunflowers	0.38 L/ha	Ground and aerial application	72 days
Dry Common Beans ^{1,2} (<i>Phaseolus vulgaris</i> varieties only)	0.19 L/ha	Ground and aerial application	60 days
Basil ^{1,2,4,5}	0.19 L/ha	Ground application only	30 days
Caraway ^{1,5,6}	0.38 L/ha	Ground application only	60 days
Coriander ^{1,5,6}	0.38 L/ha	Ground application only	60 days
Cranberry ^{1,2,5}	0.38 L/ha	Ground application only	30 days
Dill ^{1,5}	0.38 L/ha	Ground application only	40 days

Dry Bulb Onions ^{1,5}	0.38 L/ha	Ground application only	45 days
Fenugreek ^{1,5,6}	0.38 L/ha	Ground application only	30 days
Highbush Blueberry ^{1,4,5}	0.38 L/ha	Ground application only	14 days
Prairie Carnation ^{1,5,6}	0.19 L/ha	Ground application only	N/A
Red garden (table) beet, parsnip, carrot, radish ^{3,5}	0.38 L/ha	Ground application only	30 days
Safflower ^{1,5}	0.38L/ha	Ground application only	70 days
Spinach ^{3, 5}	0.19L/ha	Ground application only	14 days

1. Apply a maximum of one application per year.
2. NOTE: Varieties of this crop may vary in their tolerance to herbicides, including to FBN Clethodim 240. Since not all crop varieties have been tested for tolerance to FBN Clethodim 240, first use of FBN Clethodim 240 should be limited to a small area of each variety to confirm tolerance prior to adoption as a general field practice. Additionally, consult your supplier for information on the tolerance of specific varieties to FBN Clethodim 240.
3. Apply a maximum of two applications per year. If repeat application is required, allow at least 14 days between first and second application.
4. Apply FBN Clethodim 240 as a broadcast spray directed to the ground.
5. Refer to section "MINOR USES" in this label for additional use instructions.
6. Do not harvest treated Prairie Carnations or greens of treated fenugreek as a vegetable or leaves of treated coriander (cilantro) and caraway for human consumption.
7. SPRAY VOLUME FOR AERIAL APPLICATION: Apply in 28 to 55 L/ha. Increase spray volumes up to 100 L/ha as grass or crop foliage becomes dense.

TANK-MIXES:

When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

FBN Clethodim 240 AND BUCTRIL® M:

Flax (including low linolenic acid varieties): FBN Clethodim 240 may be tank-mixed with BUCTRIL M for control of certain broadleaf and grassy weeds in flax (including low linolenic acid varieties) in one spray operation. Apply in 55 - 110 litres of water per hectare at a spray pressure of 275 kPa. DO NOT spray this tank-mix on plants under stress. DO NOT spray during periods of hot, humid weather. Follow all precautions, limitations and timing recommendations on the BUCTRIL M label. The most stringent label precautions for any individual pesticide product in a tank-mix should be used.

Time of Application: Flax (including low linolenic acid varieties) may be treated from 5 cm high to the early bud stage. For best results, apply when flax (including low linolenic acid varieties) is 5 cm to 10 cm high and weeds are in the seedling stage. If broadleaf weeds and grassy weeds are not in the recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 - 0.38 L/ha tank-mixed with BUCTRIL M at 1.0 L/ha and the FBN Clethodim Adjuvant at 0.5% - 1.0% v/v.

Weeds Controlled: As listed for FBN Clethodim 240 used alone, plus certain seedling broadleaf weeds. Refer to the BUCTRIL M label for the broadleaf weeds controlled.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- If tank-mixing FBN Clethodim 240 and BUCTRIL M for once-over grass and broadleaf weed control in flax (including low linolenic acid varieties), add the correct amount of BUCTRIL M. Continue to agitate.
- Add the correct amount of FBN Clethodim 240. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

For disposal of cleaning solution, see section on DISPOSAL.

FBN Clethodim 240 AND CURTAIL® M:

Flax (including low linolenic acid varieties): FBN Clethodim 240 may be tank-mixed with CURTAIL M for control of certain broadleaf and grass weeds in flax in one spray operation. Apply in a minimum of 100 L/ha spray volume at a pressure of 275 kPa.

Follow all precautions, limitations, restrictions and timing recommendations on the CURTAIL M label.

Time of Application: Flax may be treated from 5 to 15 cm in height. Apply when the grassy weeds are in the 2-6 leaf stage and the broadleaf weeds are actively growing. Application to Canada thistle should be made when Canada thistle is between 10 cm and up to the pre-bud stage. If broadleaf weeds and grass weeds are not in recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 L/ha tank-mixed with CURTAIL M at 1.5 to 2.0 L/ha and with the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: Weed claims listed on the FBN Clethodim 240 Herbicide label plus weed claims listed on Curtail M label. Refer to the CURTAIL M label for the broadleaf weeds controlled.

Grazing Interval

Do not cut treated crops for feed or graze until 60 days after application.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the required amount of CURTAIL M to the tank. Continue to agitate.
- Add the correct amount of FBN Clethodim 240. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight. In the case of tank mixtures with broadleaf herbicides, settling will occur if agitation is not continuous.
- If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

FBN Clethodim 240 AND MCPA ESTER:

Flax: FBN Clethodim 240 may be tank-mixed with MCPA ESTER for control of certain broadleaf and grassy weeds in flax in one spray operation. For ground applications, apply in a minimum of 100 L/ha spray volume at a pressure of 275 kPa. For aerial application apply this tank-mix in a minimum of 30 L/ha spray volume at a pressure of 235 kPa.

NOTE: THIS TANK-MIX MAY NOT BE APPLIED TO LOW LINOLENIC ACID VARIETIES OF FLAX.

Time of Application: Flax may be treated from 5 cm tall to just before the bud stage. Do not apply after the early bud stage. Apply when the grassy weeds are in the 2-6 leaf stage and broadleaf weeds are in the seedling stage and actively growing. If broadleaf weeds and grassy weeds are not in the recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 - 0.38 L/ha tank-mixed with MCPA ESTER and the FBN Clethodim Adjuvant at 0.5% - 1.0% v/v.

Weeds Controlled: As listed for FBN Clethodim 240 used alone, plus certain seedling broadleaf weeds. Refer to the MCPA ESTER label for the rates and broadleaf weeds controlled and specific information on flax.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the correct amount of MCPA ESTER. Continue to agitate.
- Add the correct amount of FBN Clethodim 240. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

FBN Clethodim 240 AND LONTREL® 360:

Flax (including low linolenic acid varieties): FBN Clethodim 240 may be tank-mixed with LONTREL 360 for control of certain broadleaf and grass weeds in flax in one spray operation. Apply in a minimum of 100 L/ha spray volume at a pressure of 275 kPa.

Follow all precautions, limitations and timing recommendations on the LONTREL 360 label.

Time of Application: Flax may be treated from 5 cm to 10 cm in height. Apply when the grassy weeds are in the 2-6 leaf stage and the broadleaf weeds are actively growing. Application to Canada thistle should be made when Canada thistle is in the rosette to pre-bud stage of growth. If broadleaf weeds and grass weeds are not in recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 L/ha tank-mixed with LONTREL 360 at 0.56 to 0.83 L/ha and with the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer oats, wild buckwheat.

Canada thistle	0.56 L LONTREL 360/ha	Season-long control
	0.83 L LONTREL 360/ha	Control extended into following year.

MIXING INSTRUCTIONS: For mixing instructions, refer to FBN Clethodim 240 and LONTREL 360 tank-mix on canola.

Canola: FBN Clethodim 240 may be tank-mixed with LONTREL 360 for control of certain broadleaf and grass weeds in canola in one spray operation. Apply in a minimum of 100 L/ha spray volume at a pressure of 275 kPa. Follow all precautions, limitations and timing recommendations on the LONTREL 360 label.

Time of Application: Canola may be treated from the 2 to 6 leaf stage. Apply when the grassy weeds are in the 2 to 6 leaf stage and the broadleaf weeds are actively growing. Application to Canada thistle should be made when Canada thistle is in the rosette to pre-bud stage of growth. If broadleaf weeds and grass weeds are not in recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 L/ha tank-mixed with LONTREL 360 at 0.42 to 0.83 L/ha and with the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer oats.

Wild Buckwheat	0.56 L LONTREL 360/ha	Season-long control
Canada thistle	0.42 L LONTREL 360/ha	Top growth control to 6 - 8 weeks
	0.56 L LONTREL 360/ha	Season-long control
	0.83 L LONTREL 360/ha	Control into following year.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the required amount of LONTREL 360 to the tank. Continue to agitate.
- Add the correct amount of FBN Clethodim 240. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight. In the case of tank mixtures with broadleaf herbicides, settling will occur if agitation is not continuous.
- If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

FBN Clethodim 240 AND PURSUIT®:

Field Peas: FBN Clethodim 240 may be tank-mixed with PURSUIT for control of certain broadleaf and grassy weeds in field peas in one spray operation. Apply in a minimum of 100 litres of water per hectare at a spray pressure of 275 kPa. Follow all precautions, limitations and timing recommendations on the PURSUIT label.

Time of Application: Field peas may be treated up to the sixth (6th) trifoliate leaf stage. Apply when volunteer wheat, volunteer barley, wild oats and green foxtail are in the 2-6 leaf stage. Apply up to the 4-leaf stage for control of broadleaf weeds. If broadleaf weeds and grassy weeds are not in the recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 L/ha tank-mixed with PURSUIT at 210 mL/ha and the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: Wild oats, green foxtail, volunteer barley, volunteer wheat plus the weeds as listed on the PURSUIT label.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- If tank-mixing **FBN Clethodim 240** and PURSUIT for once over grass and broadleaf weed control in field peas, add the correct amount of PURSUIT. Continue to agitate.
- Add the required amount of **FBN Clethodim 240** to the tank. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

Imazethapyr Tolerant Canola (e.g. canola varieties with the SMART trait): FBN Clethodim 240 may be tank-mixed with PURSUIT for control of certain broadleaf and grassy weeds in imazethapyr-tolerant canola varieties in one spray operation. Apply in a minimum of 100 litres of water per hectare at a spray pressure of 275 kPa. Follow all precautions, limitations and timing recommendations on the PURSUIT label.

Time of Application: Imazethapyr-tolerant canola varieties may be treated after the crop has developed one (1) fully expanded leaf. Apply when grassy weeds are in the 2 to 6-leaf stage. Apply up to the 4-leaf stage for control of broadleaf weeds.

Application Rate: FBN Clethodim 240 at 0.19L/ha tank-mixed with PURSUIT at 0.105 or 0.21 L/ha and the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: As listed for FBN Clethodim 240 plus the following additional weeds.

PURSUIT at 0.105 L/ha for control of chickweed, hempnettle, redroot pigweed*, stinkweed, volunteer canola (not imazethapyr-tolerant), wild mustard and wild buckwheat*, in the 1 to 4-leaf stage.

*For the control of light infestations only. For heavy infestations, use the 0.21 L/ha rate of PURSUIT.

PURSUIT at 0.21 L/ha for control of weeds as listed on the PURSUIT label.

MIXING INSTRUCTIONS: For mixing instructions, refer to FBN Clethodim 240 and PURSUIT tank-mix on field peas.

FBN Clethodim 240 AND MUSTER®:

Canola: FBN Clethodim 240 may be tank-mixed with MUSTER for control of certain broadleaf and grassy weeds in canola in one spray operation. Apply in a minimum of 100 litres of water per hectare at a spray pressure of 275 kPa. Follow all precautions, limitations and timing recommendations on the MUSTER label.

Time of Application: Canola may be treated from the 2 leaf stage to the beginning of bolting. Apply when the grassy weeds are in the 2 to 6 leaf stage and when the broadleaf weeds are in the cotyledon to 6 leaf stage. If broadleaf weeds and grassy weeds are not in the recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 L/ha tank-mixed with MUSTER at 20 or 30 g/ha and the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled:

Muster at 20 or 30 g/ha: Wild oats, green foxtail, volunteer barley, volunteer oats, volunteer wheat, hempnettle, wild mustard, green smartweed, flixweed (spring seedlings), stinkweed*, and redroot pigweed.

* *Stinkweed suppression at the lower rate. Apply to stinkweed in the 1 to 4 leaf stage.*

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the required amount of MUSTER to the tank. Continue to agitate.
- Once MUSTER is in suspension, add the required amount of **FBN Clethodim 240**. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- On repeat tankloads, prepare a MUSTER/water slurry and add to required water volume in the spray tank prior to adding **FBN Clethodim 240** and FBN Clethodim Adjuvant.

- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight.
- Immediately after use, refer to MUSTER label for appropriate tank cleanout instructions.

FBN Clethodim 240 AND LIBERTY® 150 SN – PRAIRIE PROVINCES AND THE INTERIOR OF BRITISH COLUMBIA ONLY

Canola: For use on Glufosinate Ammonium tolerant canola varieties only (e.g. varieties or hybrids labelled LIBERTYLINK).

FBN Clethodim 240 may be tank-mixed with LIBERTY 150 SN Herbicide for control of certain broadleaf and grass weeds in Glufosinate Ammonium tolerant canola varieties in one spray operation. For ground applications, apply in a minimum of 110 L/ha spray volume at a pressure of 275 kPa. For aerial applications apply this tank-mix in a minimum of 55 L/ha spray volume at a pressure of 300 kPa.

Follow all precautions, limitations and timing recommendations on the LIBERTY 150 SN Herbicide label.

Time of Application: Glufosinate Ammonium tolerant canola varieties may be treated from the cotyledon stage up to the early bolting stage. Apply when the wild oats, volunteer wheat, volunteer oats and green foxtail are in the 1 – 5 leaf stage. Refer to the LIBERTY 150 SN Herbicide label for application timing on all remaining grass and broadleaf weeds for 2.67 or 4.0 L/ha.

Application Rate: **FBN Clethodim 240** at 63 mL/ha tank-mixed with LIBERTY 150 SN Herbicide at 2.67 to 4.0 L/ha and with the **FBN Clethodim Adjuvant** at 0.5% v/v.

Weeds Controlled: Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer oats plus all remaining grass weeds and broadleaf weeds listed on the LIBERTY 150 SN Herbicide label at the application rates of 2.67 and 4.0 L/ha.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the required amount of **FBN CLETHODIM ADJUVANT** to the tank. Continue to agitate until thoroughly mixed.
- STOP agitation. Add the correct amount of **LIBERTY 150 SN Herbicide** to the spray tank. Start agitation system.
- Add the correct amount of **FBN Clethodim 240** along with the remaining amount of water necessary to fill the spray tank.

- Continue to agitate or run the by-pass system and spray out immediately.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight. In the case of tank mixtures with broadleaf herbicides, settling will occur if agitation is not continuous.
- If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

FBN Clethodim 240 AND LIBERTY® 200 SN – EASTERN CANADA AND BRITISH COLUMBIA ONLY

Canola: For use on Glufosinate Ammonium tolerant canola varieties only (e.g. varieties or hybrids labelled LIBERTYLINK).

FBN Clethodim 240 may be tank-mixed with LIBERTY 200 SN Herbicide for control of certain broadleaf and grass weeds in Glufosinate Ammonium tolerant canola varieties in one spray operation. Apply in a minimum of 110 L/ha spray volume at a pressure of 275 kPa. Follow all precautions, limitations and timing recommendations on the LIBERTY 200 SN Herbicide label.

Time of Application: Glufosinate Ammonium tolerant canola varieties may be treated from the cotyledon stage up to the early bolting stage. Apply when the wild oats, volunteer wheat, volunteer oats and green foxtail are in the 1 – 5 leaf stage. Refer to the LIBERTY 200 SN Herbicide label for application timing on all remaining grass and broadleaf weeds for 2.0 or 2.5 L/ha.

Application Rate: **FBN Clethodim 240** at 63 mL/ha tank-mixed with LIBERTY 200 SN Herbicide at 2.0 to 2.5 L/ha and with the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer oats plus all remaining grass weeds and broadleaf weeds listed on the LIBERTY 200 SN Herbicide label at the application rates of 2.0 and 2.5 L/ha.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the required amount of **FBN CLETHODIM ADJUVANT** to the tank. Continue to agitate until thoroughly mixed.
- STOP agitation. Add the correct amount of **LIBERTY 200 SN Herbicide** to the spray tank. Start agitation system.

- Add the correct amount of **FBN Clethodim 240** along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system and spray out immediately.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight. In the case of tank mixtures with broadleaf herbicides, settling will occur if agitation is not continuous.
- If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

MINOR USES:

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS (BELOW): The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.				
CROP	Weeds controlled	Application rate of FBN Clethodim 240	Application rate of FBN Clethodim Adjuvant	REMARKS
DRY BULB ONIONS	Annual weeds listed on FBN Clethodim 240 label and suppression of annual bluegrass at the 2-6 leaf stage.	0.38 L/ha	0.5% v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post- emergent when the crop is in the 1- 4 leaf stage. Apply by ground application. One application per year.</p> <p>Observe a PHI of 45 days.</p> <p>Ground application only.</p>
FENUGREEK	Annual weeds listed on FBN Clethodim 240 label.	Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post- emergent when fenugreek is in the 3 - 5 leaf stage. Apply a maximum of one application per season, using ground equipment.</p> <p>Observe a PHI of 30 days.</p> <p>Do not graze or feed FBN Clethodim 240-treated fenugreek forage to livestock. Do not use the greens of treated fenugreek as a vegetable for human consumption.</p> <p>Ground application only.</p>

CORIANDER, CARAWAY	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	0.5 – 1.0 % v/v Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	TIME OF APPLICATION: Apply a maximum of one application per year, post-emergent using ground equipment. Apply in a minimum spray volume of 100 L/ha. Observe a PHI of 60 days. Do not harvest leaves of treated coriander (cilantro) and caraway for human consumption. Ground application only.
SPINACH	Annual weeds listed on FBN Clethodim 240 Label.	Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	TIME OF APPLICATION: Apply a maximum of two applications per year with 14 days between applications, post emergent by ground application when grassy weeds are in the 2-6 leaf stage. Observe a PHI of 14 days. Ground application only.

CROP	Weeds controlled	Application rate of FBN Clethodim 240	Application rate of FBN Clethodim Adjuvant	REMARKS
PRAIRIE CARNATION	Annual weeds listed on FBN Clethodim 240 label. Refer to weed/rate chart in this label.	0.19 L/ha	0.5% v/v	TIME OF PPLICATION: Apply FBN Clethodim 240 post-emergence of weeds and crop. Apply a maximum of one application per year using ground equipment. Apply in a minimum spray volume of 110 L/ha. Do not harvest treated prairie carnations for human consumption. Ground application only.
HIGHBUSH BLUEBERRY	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha	0.5 – 1.0 % v/v	TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergence of weeds and crop. Apply a maximum of one application per year, post-emergent by ground equipment. Apply as a broadcast spray directed to the ground. Apply in a minimum spray volume of 100 L/ha. Observe a PHI of 14 days.

				Ground application only.
SAFFLOWER	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha	0.5 – 1.0 % v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergent when safflower is in the 6 - 8 leaf stage. Apply a maximum of one application per season, using ground equipment. Apply in a minimum spray volume of 100 litres of water per hectare.</p> <p>Observe a PHI of 70 days.</p> <p>Ground application only.</p>
CRANBERRY	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha	0.5 – 1.0 % v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergence of weeds and crop. Do not apply between the hook stage and full fruit set. Apply a maximum of one application per year using ground equipment. Apply in a minimum spray volume of 110 litres of water per hectare.</p> <p>Observe a PHI of 30 days.</p> <p>Ground application only.</p>

CROP	Weeds controlled	Application rate of FBN Clethodim 240	Application rate of FBN Clethodim Adjuvant	REMARKS
DILL	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha	0.5 – 1.0 % v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergence when dill is in the 3-5 leaf stage. Apply a maximum of one application per year using ground equipment. Apply in a minimum spray volume of 100 L/ha.</p> <p>Do not harvest dillweed or dill seed within 40 days of application.</p> <p>Ground application only.</p>

RED GARDEN (TABLE) BEET, PARSNIP, CARROT, RADISH	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha	0.5 – 1.0 % v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergence of weeds and crop using ground equipment. Apply a maximum of two applications per year. If repeat application is required, allow at least 14 days between first and second application. Do not apply more than 0.38 L/ha (90 grams a.i./ha) per crop per season. Apply in a minimum spray volume of 110 L/ha.</p> <p>Observe a PHI of 30 days.</p> <p>Ground application only.</p>
BASIL	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 L/ha	0.5% v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergence of weeds and crop. Apply a maximum of one application per year using ground equipment. Apply as a broadcast spray directed to the ground. Apply in a minimum spray volume of 110 L/ha.</p> <p>Observe a PHI of 30 days.</p> <p>Ground application only.</p>

APPLICATION INSTRUCTIONS:

GROUND APPLICATION:

Water volume and spray pressure:

For ground application, use sprayers equipped with standard flat fan nozzles. For optimum spray coverage, use nozzles tilted 45° forward.

The use of flood jet or hollow cone nozzles is not recommended, because of uneven and inadequate spray coverage. Thorough and uniform spray coverage over the entire leaf area of the target weeds is necessary for optimum weed control.

Thoroughly clean all screens to prevent nozzle clogging, especially when water volumes of 55 to 110 L/ha are used.

For ground applications, use spray volumes of 55 to 225 L/ha and a minimum of 275 kPa pressure. For applications to dense weed infestations or to dense crop canopies, use a minimum of 110 litres of water per hectare at pressures of 275 to 425 kPa. In any situation, ensure the proper rate of FBN CLETHODIM ADJUVANT is maintained as listed on the label under APPLICATION RATES OF FBN Clethodim 240.

For dry common beans (*Phaseolus vulgaris* varieties only), a minimum spray volume of 110 L water/ha is recommended.

AERIAL APPLICATION:

- Apply FBN Clethodim 240 alone or in tank mixes (ONLY with the recommended tank mix partners that are registered for aerial use) in no less than 28 L/ha spray volume at a pressure no less than 300 kPa.
- Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.
- Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended on this label.
- When applying **FBN Clethodim 240** by aircraft, uniform coverage is essential. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Aerial Use Precautions

- Read and understand the entire label before opening this product. If you have questions, call Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative.
- Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.
- Do not apply to terrain where there is a potential for surface run-off to enter aquatic systems.
- Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.
- Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift.
- Do not apply when wind speed is greater than 16 km/h at a flying height at the site of application.
- Do not apply with spray droplets smaller than ASAE medium classification.

Aerial Operator Precautions:

- Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.
- It is desirable that the pilots have communication capabilities at each treatment site at the time of application.

- The field crew and the mixer/loaders must wear a long-sleeved shirt, long pants, rubber apron, chemical-resistant gloves, goggles/face shield, socks and rubber boots. All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions:

- Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 10 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Buffer zones:

Spot treatments using hand-held equipment **DO NOT** require a buffer zone. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of application	Crop		Buffer Zones (meters) Required for the Protection of:		
			Freshwater Habitat of Depths		Terrestrial Habitat
			Less than 1m	Greater than 1m	
Field sprayer	All crops		1	1	1
Aerial	Canola, flax (including low linolenic acid varieties), field peas, lentils, potatoes, Oriental (brown) mustard (condiment and oilseed types), yellow mustard, soybeans, sunflowers, Brassica carinata, dry bulb onions, garlic	Fixed wing	5	1	40
		Rotary wing	5	1	35
	Dry common beans, Desi and Kabuli chickpeas	Fixed wing	1	1	20
		Rotary wing	1	1	20

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

ROTATIONAL CROP RESTRICTIONS

- A 30-day plant-back interval should be observed for all unlabelled crops.

RESTRICTIONS AND LIMITATIONS:

- Use only for crops listed on the label.
- Thorough preplant tillage operations are required to fields where sod or forage grass crops may have grown in the previous year.
- Take necessary precautions to avoid sprayer overlaps.
- Rainfall within one hour of application may reduce the effectiveness of the spray.

- Do not mix or apply **FBN Clethodim 240** with any other additive, pesticide or with fertilizer except as specifically recommended on the label.
- Allow 4 days between application of **FBN Clethodim 240** and any other chemical not recommended as a tank-mix combination on the label.
- Do not apply more than 0.38 L/ha (90 grams a.i./ha) per season.
- Do not use crops for grazing of livestock or green feed following application of **FBN Clethodim 240** until after the appropriate interval as specified in the crop recommendations table has been observed. Do not cut treated crops for forage until the appropriate interval as specified in the crop recommendations table has been observed.
- FBN Clethodim 240 may be applied by air for certain crops specified in this label.
- Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
- Not for use in greenhouses.

HERBICIDE RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, FBN Clethodim 240 is a Group 1 herbicide. Any weed population may contain or develop plants naturally resistant to FBN Clethodim 240 and other Group 1 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of FBN Clethodim 240 or other Group 1 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. or phone 1-844-200-FARM (3276).

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

BUCTRIL® is a registered trademark of Bayer.

LONTREL® 360 and CURTAIL are registered trademarks of Dow AgroSciences LLC.

MUSTER® is a registered trademark of FMC Corporation.

LIBERTY® and PURSUIT® are registered trademarks of BASF.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33649
Product Name :	FBN DIQUAT 240SN
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2019-12-23
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2024-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	DIQUAT 6,7-DIHYDRODIPYRIDO[1,2-A:2;1'-C]PYRAZINE-5,8-DIUM OR 9,10-DIHYDRO-8A,10A-DIAZONIAPHENANTHRENE OR 1,1'-ETHYLENE-2,2'-BIPYRIDYLDIYLUM CASN = 2764-72-9 (GUAR = 240 g/l NOMINAL)

Date Modified: 2020-08-31

FBN DIQUAT 240SN

HERBICIDE

Solution

AGRICULTURAL

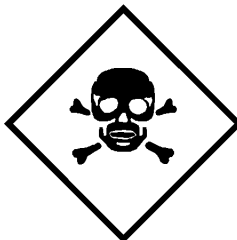
For Desiccation of Pulse, Oilseed and Legume Forage Seed Crops, Weed Control in Vegetable and Field Crops, Control of Corn Spurry in Oats and Weed Control in Non- crop Land (rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks).

ACTIVE INGREDIENT:

Diquat, present as diquat dibromide.....240 g/L

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

WARNING



POISON

CAUTION – EYE AND SKIN IRRITANT

REGISTRATION NO. **33649**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **10 L to Bulk**

Registrant:
Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

WARNING!
***HARMFUL OR FATAL IF SWALLOWED.**
HARMFUL IF INHALED, AVOID INHALING/BREATHING DUST, SPRAYS, ETC.
***CAUSES SUBSTANTIAL EYE INJURY AND SKIN IRRITATION.**
***DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.**
***NEVER TRANSFER TO OTHER CONTAINERS.**
*** KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, **IMMEDIATELY** hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If swallowed, give adsorbent suspension, for example either activated charcoal (100 g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄, Na₂SO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column.

If in eyes, treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

PRECAUTIONS

EXCESSIVE EXPOSURE TO DIQUAT MAY CAUSE A HEALTH HAZARD. FOLLOWING THE DIRECTIONS AND PRECAUTIONS WILL REDUCE EXPOSURE.

DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical-resistant footwear and a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides during mixing, loading, application, clean-up and repair. Chemical-resistant headgear must be worn for overhead applications. Gloves are not required during application within a closed cab or cockpit. Most exposure to pesticides is by absorption through skin, especially from concentrated material handled at the time of mixing and loading. Rolling down the sleeve end of the glove will prevent drips of liquid from running down the glove onto your arm.

Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY. Launder contaminated clothing prior to reuse and separate from household laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Do not eat, drink, handle or use tobacco, or apply cosmetics in areas where there is potential for exposure to this product. Users should wash hands and face before eating, drinking, chewing gum, handling tobacco or using the toilet. Store and wash all protective clothing separately from household laundry.

Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours for all agricultural uses. For all other terrestrial uses, DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

STORE IN ORIGINAL CONTAINER tightly closed in a safe place away from children.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

ENVIRONMENTAL HAZARDS

ANY DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH.

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid applications to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative buffer strip between the treated area and the edge of the water body.

STORAGE

Store in original container, tightly closed, in a safe place away from children.

Store above 0°C. If crystallization occurs because of storage below this, warm to room temperature and agitate gently until reconstituted.

To prevent contamination store this product away from food or feed.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-613-966-6666***

FBN DIQUAT 240SN

HERBICIDE

Solution

AGRICULTURAL

For Desiccation of Pulse, Oilseed and Legume Forage Seed Crops, Weed Control in Vegetable and Field Crops, Control of Corn Spurry in Oats and Weed Control in Non- crop Land (rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks).

ACTIVE INGREDIENT:

Diquat, present as diquat dibromide.....240 g/L

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KEEP OUT OF REACH OF CHILDREN**

WARNING



POISON

CAUTION – EYE AND SKIN IRRITANT

REGISTRATION NO. **33649**
PEST CONTROL PRODUCTS ACT

Registrant:
Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

WARNING!
***HARMFUL OR FATAL IF SWALLOWED.**
HARMFUL IF INHALED, AVOID INHALING/BREATHING DUST, SPRAYS, ETC.
***CAUSES SUBSTANTIAL EYE INJURY AND SKIN IRRITATION.**
***DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.**
***NEVER TRANSFER TO OTHER CONTAINERS.**
*** KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

NOTICE TO USER

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FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, **IMMEDIATELY** hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If swallowed, give adsorbent suspension, for example either activated charcoal (100 g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄, Na₂SO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column.

If in eyes, treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

PRECAUTIONS

EXCESSIVE EXPOSURE TO DIQUAT MAY CAUSE A HEALTH HAZARD. FOLLOWING THE DIRECTIONS AND PRECAUTIONS WILL REDUCE EXPOSURE.

DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical-resistant footwear and a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides during mixing, loading, application, clean-up and repair. Chemical-resistant headgear must be worn for overhead applications. Gloves are not required during application within a closed cab or cockpit. Most exposure to pesticides is by absorption through skin, especially from concentrated material handled at the time of mixing and loading. Rolling down the sleeve end of the glove will prevent drips of liquid from running down the glove onto your arm.

Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY. Launder contaminated clothing prior to reuse and separate from household laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Do not eat, drink, handle or use tobacco, or apply cosmetics in areas where there is potential for exposure to this product. Users should wash hands and face before eating, drinking, chewing gum, handling tobacco or using the toilet. Store and wash all protective clothing separately from household laundry.

Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours for all agricultural uses. For all other terrestrial uses, DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

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If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

ENVIRONMENTAL HAZARDS

ANY DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH.

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid applications to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative buffer strip between the treated area and the edge of the water body.

STORAGE

Store in original container, tightly closed, in a safe place away from children.

Store above 0 °C. If crystallization occurs because of storage below this, warm to room temperature and agitate gently until reconstituted.

To prevent contamination store this product away from food or feed.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-613-966-6666***

PRODUCT INFORMATION

FBN DIQUAT 240SN™ is a non-volatile, fast acting herbicide. It is inactivated on contact with the soil and therefore, has no residual effect. The herbicidal effect varies with weed species, hence repeat applications may be necessary upon certain perennial weeds. Annual weeds are generally killed with one application.

Germination of seed is not affected by FBN DIQUAT 240SN for all crops which could go for seed sale.

FBN DIQUAT 240SN is easily applied in high or low volume sprayers. Very low volume or ultra low volume equipment for aerial application, e.g. rotary atomizer nozzles such as MICRONAIR, are not recommended. Flat fan or hollow cone nozzles are recommended for optimum results. Always use recommended water volume. Complete coverage is essential. DO NOT USE MIST BLOWERS.

FBN DIQUAT 240SN is rapidly absorbed by plants, and effectiveness is not reduced by rain falling shortly after treatment. EFFECTIVENESS OF THE TREATMENT MAY BE ENHANCED WHEN APPLICATION IS MADE ON CLOUDY DAYS OR PRIOR TO PERIODS OF DARKNESS.

Use clean (non-turbid) water for spraying FBN DIQUAT 240SN. Muddy water will reduce the effectiveness of FBN DIQUAT 240SN.

THE USER MUST BE AWARE THAT THIS PRODUCT ACCELERATES THE NATURAL PROCESS OF CROP DRY DOWN. IN CASES OF ADVERSE WEATHER CONDITIONS SUCH AS HEAVY RAIN, HAIL OR STRONG WIND, THE RESULTANT DAMAGE TO YOUR CROP MAY BE ENHANCED. TAKE NOTE THAT CERTAIN CROPS ARE MORE FRAGILE THAN OTHERS.

Crop waste remaining after harvest (e.g. pea vines, alfalfa stems) may be used as a feed supplement for livestock.

HARVESTING

The use of FBN DIQUAT 240SN facilitates direct combining of many field crops such as lentils, peas, canola, mustard or legumes. Growers who wish to swath desiccated crops should wait until the crop has dried down sufficiently to allow the desiccated crop to be picked up and threshed immediately after swathing. Delaying threshing after swathing desiccated crops will increase shattering and seed loss.

For most crops, harvest can normally commence within 4-10 days after desiccation. However, adverse weather conditions such as rainfall, cool temperatures and high humidity will slow plant desiccation and keep seed moisture levels high which can delay commencement of harvest beyond 10 days after application. When those conditions prevail after FBN DIQUAT 240SN desiccation, commence harvest when plant material is dry and seed moisture level allows efficient harvesting. To minimize seed loss and to maintain seed quality, harvest of desiccated crops should commence as soon as seed moisture reaches the level for normal harvest.

CLEANING SPRAYER AFTER USE

It is important to thoroughly wash equipment after spraying - use a wetting agent (AGRAL® 90 at 60 mL per 100 L of water), flush and spray out, then thoroughly rinse with clean water. When possible, the equipment should be filled with clean water and left overnight. Spray out before storing equipment or using for other materials.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Refer to the following table for a summary of rates, application volumes and growth stages for ground and aerial application of FBN DIQUAT 240SN. The table provides operational information. The applicator is directed to the CROPS-ADDITIONAL NOTES section for any additional information prior to spraying. Ground spraying may be done with any standard boom sprayer.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, temperature inversions, application equipment and sprayer settings.

Mixers and loaders supporting aerial applications are required to use closed systems.

Field sprayer application: DO NOT apply during period of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C) and **humidity** (greater than 50%). DO NOT apply when wind speed is greater than 9 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To minimize spray drift, use flat fan or hollow cone nozzles, and a pressure of 150-200 kPa, with the nozzle pointed back 150°-180°. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wingspan or rotorspan.

For application to rights-of-way, buffer zones for production of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g. wind direction, low wind speed) and spray equipment (e.g. coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

Use AGRAL 90, a wetting and spreading agent, at a rate of 1 L for each 1000 L of spray mixture unless otherwise stated.

AGITATE WELL BEFORE USE.

Buffer zones:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of:			
		Aquatic Habitat of Depths:		Terrestrial Habitat	
		Less than 1 m	Greater than 1 m		
Field sprayer ¹	Beans, canola, flax, lentils, mustard, peas, sunflower, legume forage seed crops, sweet white lupins	5	3	3	
	Vegetable and field crops, fruit, non-cropland (including rights-of-way ² for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)	10	5	5	
Aerial	Beans, legume forage seed crops	Fixed wing	150	80	90
		Rotary wing	100	55	70

¹ For field sprayer application, buffer zones can be reduced with the use of drift-reducing spray shields. When using a spray boom fitted with a shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

² For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zones of the products involved in the tank mixture.

GROUND APPLICATION

Ground spraying may be done with any standard boom sprayer.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Mixers and loaders supporting aerial applications are required to use closed systems.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew must wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical-resistant footwear and a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides during mixing/loading, clean-up and repair.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 45 litres per hectare.

Refer to ENVIRONMENTAL PRECAUTIONS for additional details.

ENVIRONMENTAL PRECAUTIONS

AIRCRAFT APPLICATION IS NOT RECOMMENDED WHERE WETLANDS OR WILDLIFE COVER MIGHT BE OVERSPRAYED. AVOID SPRAY DRIFT ONTO ADJACENT CROPS, SHELTER BELTS AND WILDLIFE COVER. AVOID OVERSPRAYING OR DRIFT ONTO SLOUGHS.

SINCE HERBICIDE APPLICATION MAY DAMAGE THE HABITAT OF MIGRATORY BIRDS AND OTHER WILDLIFE SPECIES, DO NOT USE AERIAL APPLICATION IN FIELDS WHERE WETLANDS OR OTHER GOOD WILDLIFE COVER MIGHT BE OVERSPRAYED; THIS INCLUDES SLOUGHS AND DRY SLOUGH MARGINS IN WESTERN CANADA. USE GROUND SPRAYERS AND LEAVE AN UNSPRAYED MARGIN OF 15 M AROUND THE BORDER OF ALL SLOUGHS.

Apply in weather conditions that will not promote drift. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C), **humidity** (greater than 50%), and **wind** 3.5-9 kph at flying height at the site of application. Do not apply in dead calm conditions or when temperature inversion is likely (e.g. evening when warm air is rising from crop or morning when sunshine warms the soil and air rises from the field). To avoid spray drift, use flat fan or hollow cone nozzles, and a pressure of 150-200 kPa, with the nozzles pointed back 150°-180°.

TABLE 1

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Field Crops					
Beans-White & Red Kidney, Soybeans and Adzuki beans	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray at 80-90% natural leaf defoliation and at least 80% of the pods have turned yellow. Consider pod turn only when determining application time in years when heavy vine growth is anticipated.
	1.7-2.1	Aerial	at least 45		
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	
2.3	Aerial	at least 45			
Canola	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply when 90% or more of seed has turned brown. Combine no later than 14 days after application.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		
Chickpeas	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green. For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Drydown is less complete in Kabuli type due to its thick pod wall.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	

Flax (including low linolenic acid varieties)	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when crop is at 75% boll turn stage.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	Harvest when flaxseed tests 'dry'.
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Legumes (alfalfa, birdsfoot trefoil, red clover and white clover) Seed Crops	1.7-2.7	Ground	225-550	Full canopy and/or weedy crop	Seed crops only. Apply when the majority of the pods of individual plants are ripe but before they shatter. To prevent pod shattering and loss of seed the interval between spraying and harvest should not exceed 7 days.
	1.7-2.7	Aerial	at least 45		
	2.7	Ground	225-550	Very dense canopy and/or weedy crop and/or secondary regrowth	
	2.7	Aerial	at least 45		
Lentils	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply FBN DIQUAT 240SN at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and rattle.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		
Mustard (condiment type only)	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when crop is at 75% seed turn (green to brown) stage.
	1.7	Aerial	at least 45	Very dense canopy and/or weedy crop	Combine no later than 14 days after application.
	2.3	Aerial	at least 45		
Oats - Corn Spurry Control	0.9	Ground	225-335	Corn spurry less than 8 cm high	Do not use wetters, spreaders or stickers.
	1.25	Ground	225-335	Corn spurry more than 8 cm high	Apply when oats are 8-15 cm in height. DO NOT APPLY BY AIR.
Peas - Field or Dry	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply FBN DIQUAT 240SN when bottom pods of the majority of the plants are ripe & dry with the seeds detached from the pods. Seed in less mature pods will split when squeezed.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Sweet White Lupins	2.3	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when the pods are brown and the internal seed (endosperm) yellow when cut. DO NOT APPLY BY AIR.
Sunflowers	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when seeds reach maturity (20-50% moisture in the seed and hull). Combine 15-20 days after spraying.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Vegetables & Field Crops					
Stale Seedbed	2.3	Ground	at least 300	Small weeds (3-5 cm high)	Stale Seedbed - Pre-emergent to crop, post emergent weeds.
	4.6	Ground	at least 300	Large weeds (greater than 5 cm high)	Burn off weeds either prior to, or after seeding, but 3 days before crop emergence. If grasses are present, use GRAMOXONE® in place of FBN DIQUAT 240SN. DO NOT APPLY BY AIR.
Vegetables					
Inter-row directed weeding	2.3-4.6	Ground	900-1100		If grasses are present use GRAMOXONE in place of FBN DIQUAT 240SN. DO NOT APPLY BY AIR.
Fruit					
Perennial grass suppression under apple trees	4.6	Ground	225-675		DO NOT APPLY BY AIR.
Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)					
Weed Control in non-crop land	2.3-4.6	Ground	550-1100		Use higher rates and higher volume of water for dense weed growth. Thoroughly wet foliage. DO NOT APPLY BY AIR.

CROPS - ADDITIONAL NOTES

Beans

White and Red-Kidney Beans, Soybeans and Adzuki Beans

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Spray at 80-90% natural leaf defoliation and when at least 80% of the pods have turned yellow. In years of excessive vine regrowth, consider pod colour only for the timing of FBN DIQUAT 240SN application. Desiccation of weeds is completed in a week. THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS. Direct combine or pull beans when they are considered ready. Combining of dry beans and Adzuki beans can often be done the day of pulling; however, this is dependent on the condition of the beans.

FBN DIQUAT 240SN applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of FBN DIQUAT 240SN for beans as well as the highest registered water volume to obtain the best activity.

Canola

This treatment does not mature canola. FBN DIQUAT 240SN is an effective desiccant aiding in the harvest of canola. Speed of pod and stem dry down will vary depending on spray coverage, environmental conditions and plant growth stage at application; however pod and stem kill will take place 7-10 days after application.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Apply when 90% or more of seed has turned brown; application of FBN DIQUAT 240SN prior to this stage can result in high levels of green seed in the sample.

Commence harvest as soon as the crop can be combined since significant yield loss in standing desiccated canola crops, particularly Argentine varieties, can occur due to pod drop and pod shattering. This yield loss can be greater if harvest of the standing desiccated crop is delayed or when unfavourable weather conditions including high winds and heavy rainfall occur.

Germination of seed is not affected by FBN DIQUAT 240SN desiccation.

Chickpeas

This treatment does not mature chickpeas. Chickpea swaths are at risk to wind loss, and straight cutting is preferred. Timing is vital as premature desiccation will result in yield and quality loss. Crops should be closely monitored for correct stage of application. Application of FBN DIQUAT 240SN may cause the small stem attaching the pod to the chickpea plant to become brittle and lead to increased pod loss. Wait 4 to 7 days before combining the crop. It may be advantageous to harvest, and bin separately, chickpea grain from late maturing areas of the field. Use of higher water volumes will provide more complete coverage.

For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green.

For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Drydown is less complete in Kabuli type due to its thick pod wall.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage.

Germination of seed is not affected by FBN DIQUAT 240SN desiccation.

Flax (including low linolenic acid varieties)

FBN DIQUAT 240SN is an effective desiccant aiding in the harvest of flax (including low linolenic acid varieties). Desiccation reduces the period of time from maturity to harvest, reduces wear and tear on harvesting equipment, reduces harvest time, decreases the moisture content of the seed and eliminates the need for swathing.

Spray when the crop is at the 75% boll turn stage (normal swathing time).

Do not apply before 75% boll turn. Harvest when the flaxseed tests 'dry'.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage.

Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Germination of seed is not affected by FBN DIQUAT 240SN desiccation of the crop.

Fruit

Perennial Grass Suppression Under Apple Trees

See Table 1 for rates.

DO NOT APPLY BY AIR.

Legumes

Alfalfa, Birdsfoot Trefoil, Red Clover, and White Clover Seed Crops

To prevent seed pod shattering and loss of seed, the interval between spraying and harvest should not exceed 7 days. NOTES: 1) Birdsfoot trefoil plants under drought or disease stress may be subject to damage when desiccated with FBN DIQUAT 240SN. 2) Do not use FBN DIQUAT 240SN if a residual herbicide has been used on the legumes within the past 12 months.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Lentils

Apply FBN DIQUAT 240SN at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and seeds rattle. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs.

FBN DIQUAT 240SN applied to lentils under prolonged drought stress, rainfall, cool temperatures and high humidity will provide slower and less effective desiccation compared to applications made under normal growing conditions. If these conditions exist prior to application, use the highest registered rate of FBN DIQUAT 240SN for lentils as well as the highest registered water volume to obtain the best activity.

Harvest delays should be expected.

Mustard (condiment type only)

Spray when the crop is at the 75% seed turn (green to brown) stage. Do not apply when the crop is immature or past the recommended stage of maturity. Commence combining no later than 14 days after application. **NOTE:** Pod drop and some shattering can occur in high winds in the standing crop.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Apply by means of an aircraft fitted to apply uniform spray coverage.

Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)

Weed Control in Non-Crop Land

For the top kill of weeds, FBN DIQUAT 240SN will provide a rapid top-kill of weeds and grasses when applied as a foliar spray. FBN DIQUAT 240SN may be added to tank mixes of certain soil sterilants where immediate top kill and long term soil sterilization is required. The combined use with soil sterilants should be based on previous experimental experience, and recommendations on the label of the residual herbicide.

DO NOT APPLY BY AIR.

Oats - Corn Spurry Control

FBN DIQUAT 240SN, when applied by ground sprayer as recommended in Table 1 will burn corn spurry and give a temporary burning of the exposed oats leaves, but the plants quickly recover. Do not use any surfactant.

DO NOT APPLY BY AIR.

Peas

This treatment does not mature peas. Because pea swaths are at considerable risk to wind losses, straight cutting should be considered. Timing is vital as premature desiccation will result in yield loss: crops should be closely monitored. Commence combining when the peas test "dry".

FBN DIQUAT 240SN applied to peas under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of FBN DIQUAT 240SN for peas as well as the highest registered water volume to obtain the best activity.

With indeterminate varieties, apply FBN DIQUAT 240SN when the lower pods of most plants are ripe, dry, translucent and shrunken, with enclosed seeds detached from the pods. Middle pods will be somewhat shrunken and leathery, and the seed will split when squeezed. Desiccation will dry out upper pods and green plant growth, leaving bottom and middle pods with the highest quality seed.

With determinate varieties, FBN DIQUAT 240SN should be applied when the top and upper middle pods are somewhat shrunken and leathery and seeds in these pods split when squeezed. The lower middle and bottom pods are ripe and dry, translucent and shrunken, with seeds enclosed in these pods detached.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Sweet White Lupins

Apply FBN DIQUAT 240SN once per season for pre-harvest desiccation. Spray when the pods are brown and the internal seed (endosperm) yellow when cut. Wait at least 7 days before harvesting. Do not add wetters, spreaders or stickers to the spray solution. Ground rig application only. Ground spraying may be done with any standard boom sprayer. DO NOT APPLY BY AIR.

Sunflowers

FBN DIQUAT 240SN is an effective desiccant aiding in the harvest of sunflower seed for seed, oil production and confectionery use. If specialized high clearance equipment is available, ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too tall or the ground too soft for ground rigs. Do not apply when the crop is immature.

Combine 15-20 days after spraying.

Vegetables and Field Crops

Stale Seedbed - Pre-emergent to crop, Post-emergent to Weeds on Stale Seedbed

For weed control in beans (all types), beets, carrots, cole crops, corn, onions, peas, cucumbers, soybeans and turnips, prepare a stale seedbed by early cultivation (at least two to four weeks in advance of seeding) to stimulate weed growth. Seed without further cultivation and with a minimum of soil disturbance.

Apply by ground sprayer 2.3 to 4.6 L of FBN DIQUAT 240SN (2.3 L for small weeds, 3 to 5 cm high, and 4.6 L for larger weeds) in 300 L or more of water per hectare to burn off emerged weeds either prior to seeding or after seeding, but three days before crop emergence. If grasses are present, use GRAMOXONE herbicide in place of FBN DIQUAT 240SN.

DO NOT APPLY BY AIR.

Vegetables

Inter-row, Directed Chemical Weeding of Vegetable Crops

For weed control between the rows after crop and weed emergence, use suitable protective equipment and spray nozzle to protect crop from spray. If grasses are present, use GRAMOXONE herbicide in place of FBN DIQUAT 240SN.

DO NOT APPLY BY AIR.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Farmer's Business Network Canada, Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Farmer's Business Network Canada, Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Farmer's Business Network Canada, Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

FABA BEANS

RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
1.25-1.7	Ground	225-550	Use higher	Apply 1 application only for crop desiccation.
1.7-2.3	Aerial	at least 45	spray rates for dense canopies and/or weedy crops	<p>Apply when the majority of the plants are ripe and dry. Pods will be fully filled and the bottom pods will be tan or black in colour.</p> <p>For ground or aerial application, use AGRAL 90 as a wetting and spreading agent, at a rate of 1 L for each 1000 L of spray mixture.</p> <p>Observe a 4 – 10 day pre-harvest interval (PHI).</p> <p>Spray pressure should be increased with high clearance sprayers (90 – 100 psi) to ensure adequate coverage of FBN DIQUAT 240SN in the lower stem area. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Desiccation of weeds is completed in a week. THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS. FBN DIQUAT 240SN applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of FBN DIQUAT 240SN for beans as well as the highest registered water volume to obtain the best activity. Timing is vital as premature desiccation will result in yield loss; crops should be closely monitored.</p>

Resistance-Management Recommendations

For resistance management, FBN DIQUAT 240SN is a Group 22 herbicide. Any weed population may contain or develop plants naturally resistant to FBN DIQUAT 240SN and other Group 22 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of FBN DIQUAT 240SN or other Group 22 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.

Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact company representatives at Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3256) or at www.fbn.com.

AGRAL[®] and GRAMOXONE[®] are trademarks of a Syngenta Group Company.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33693
Product Name :	FBN GLUFOSINATE 150
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2020-02-11
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2024-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	GLUFOSINATE-AMMONIUM AMMONIUM (2RS)-2-AMINO-4-(METHYLPHOSPHINATO)BUTYRIC ACID or Ammonium (3-amino-3-carboxypropyl)methylphosphinate CASN = 77182-82-2 (GUAR = 150 g/l NOMINAL)

Date Modified: 2020-08-31

2020-02-11
2020-0100

GROUP	10	HERBICIDE
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FBN Glufosinate 150

SOLUTION

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER
REGION AND THE INTERIOR OF BRITISH COLUMBIA ONLY**



POISON

COMMERCIAL

WARNING – SKIN and EYE IRRITANT

ACTIVE INGREDIENT: glufosinate ammonium150 g/L

REGISTRATION NUMBER 33693.....PEST CONTROL PRODUCTS ACT

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M4
1-844-200-FARM (3276)

Product Information: 1-844-200-FARM (3276)

NET CONTENTS: 10 - 1000 L

PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN. Harmful or fatal if absorbed through the skin. Harmful if swallowed. This product may cause eye irritation. **DO NOT** get in eyes, on skin or on clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

- Wear protective clothing including a long sleeved shirt, long pants, goggles, chemical resistant gloves, and respirator when handling or spraying.

- Wear chemical resistant gloves for cleanup and repair.

- Workers should not enter treated fields within 24 hours of treatment. Workers who must enter fields within this time period should wear long-sleeved shirt, long pants and chemical resistant gloves.

- Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.** Keep in original container during storage. Do not contaminate water supply, ponds, lakes, streams and irrigation ditches by direct application, spray drift or when cleaning and rinsing spray equipment or containers.

CAUTION: Do not mix FBN Glufosinate 150 with pesticides, fertilizers or any other chemical additives unless recommended on this label.

ENVIRONMENTAL PRECAUTIONS:

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under **DIRECTIONS FOR USE.** Do not contaminate these systems through direct application, disposal of waste or cleaning equipment. Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.**

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice

TOXICOLOGICAL INFORMATION: Treat symptomatically. Medical personnel should contact CANUTEC collect at 1-613-996-6666 or *666 24 hours a day.

STORAGE: CANNOT be stored below freezing. If stored for one year or longer, shake well before using. Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs. Do not use or store in or around the home. Keep in original container during storage.

DISPOSAL: Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.

2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container Disposal: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Disposal of Unused, Unwanted Product: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Disposal of Unused Spray Solution: If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Transportation of Dangerous Goods Classification: PESTICIDES, LIQUID, TOXIC, N.O.S. (GLUFOSINATE-AMMONIUM), CLASS 6.1, UN2902, P.G. III

GROUP	10	HERBICIDE
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FBN Glufosinate 150

SOLUTION

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER
REGION AND INTERIOR OF BRITISH COLUMBIA ONLY**



POISON

COMMERCIAL

WARNING – SKIN and EYE IRRITANT

ACTIVE INGREDIENT: glufosinate ammonium.....150 g/L

REGISTRATION NUMBER 33693..... PEST CONTROL PRODUCTS ACT

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M4
1-844-200-FARM (3276)

Contact number: 1-844-200-FARM (3276)

NET CONTENTS: 10 - 1000 L

GENERAL INFORMATION

FBN Glufosinate 150 may be used as a harvest aid (desiccant) in the listed crops. FBN Glufosinate 150 will also desiccate weeds present in the field at application.

Desiccation of crops and weeds will be best when environmental conditions are favourable (warm temperatures, good moisture conditions, high humidity). The speed of action of FBN Glufosinate 150 is influenced by environmental factors. At cool temperatures (below 10°C), poor moisture and low humidity, speed of action may be reduced. Generally, visual symptoms appear 2 to 4 days after application.

When a rate range is given the higher rate should be utilised:

- 1) when crop or weed growth is dense.
- 2) when environmental conditions are cool and dry.

If rainfall occurs within 4 hours of application, effectiveness may be reduced.

FBN Glufosinate 150 is a non-selective herbicide. Avoid contact with desirable plants either from direct application or from spray drift as severe damage may occur.

FBN Glufosinate 150 works primarily as a contact herbicide. Thorough coverage of the plant tissue to be desiccated or controlled is essential.

FBN Glufosinate 150 breaks down rapidly in the soil.

There are no cropping or rotational restrictions after application. Grain and meal from treated crops can be fed to livestock.

DO NOT graze or feed other portions of the treated crop to livestock; there are not sufficient data to support such use.

MIXING INSTRUCTIONS

FBN Glufosinate 150 must be applied with properly calibrated clean equipment.

FBN Glufosinate 150 is specially formulated to mix readily in water. Prior to adding FBN Glufosinate 150 to the spray tank, ensure that the spray tank is thoroughly clean (see "CLEANING INSTRUCTIONS").

1. Fill tank one-half full of clean water prior to adding FBN Glufosinate 150.
2. Add the correct amount of FBN Glufosinate 150.
3. Add the remaining amount of water, begin agitation, and spray out immediately.

NOTE: Ensure that all circuits (pipes, booms, etc.) have the correct FBN Glufosinate 150 /water concentration before application is started.

NOTE: The addition of an anti-foaming agent may reduce foaming, especially when using soft water.

CLEANING INSTRUCTIONS

Before and after using FBN Glufosinate 150 always complete a thorough cleaning of the spray tank, lines and filter. Spray equipment should be thoroughly rinsed using a strong detergent solution.

HARVEST AID - DESICCATION

GROUND APPLICATION

Apply FBN Glufosinate 150 in a minimum of 110 litres of water per hectare at a pressure of 275 kPa and at a ground speed of 6 to 8 km/h. If check valves are used, apply at 310 kPa. The use of 80° or 110° flat fan nozzles is highly recommended for optimum spray coverage and canopy penetration.

Where crop canopy is dense, or weed growth is heavy, better spray coverage will be achieved with higher spray volumes. Under these conditions, apply 170-220 litres of water per hectare.

- DO NOT USE FLOOD JET NOZZLES, CONTROLLED DROPLET APPLICATION EQUIPMENT OR AIR-ASSISTED SPRAY EQUIPMENT.

- UNIFORM, THOROUGH SPRAY COVERAGE IS IMPORTANT TO ACHIEVE CONSISTENT CROP DESICCATION AND WEED CONTROL.

Application of the spray at a 45° angle forward will result in better spray coverage. Follow directions elsewhere on the label for the correct rate and timing of application.

Leave a 15 metre buffer between the edge of the treated field and adjacent crops or environmentally sensitive areas (for instance: wetlands, sloughs, rivers or other open bodies of water, shelterbelts or wildlife habitat).

DO NOT apply when winds exceed 16 km/h when using open boom sprayers. Do not apply when winds exceed 25 km/h when using hooded sprayers.

AERIAL APPLICATION

EXERCISE EXTREME CAUTION DURING THE AERIAL APPLICATION OF ANY INSECTICIDE, HERBICIDE OR FUNGICIDE. Drift of pesticides is not always visible with the human eye. Small droplets may drift into sensitive areas without obvious signs of danger. **FOLLOW THESE DIRECTIONS PRECISELY!**

When applying FBN Glufosinate 150 by aircraft, uniform spray coverage is essential. Applicators are required to use the correct combination of spray nozzle tips, nozzle placement and spray pressures, which will provide a COARSE droplet size distribution, with a volume mean diameter greater than 350 microns. **DO NOT USE RAINDROP NOZZLES.**

Apply FBN Glufosinate 150 in 33-55 litres of water per hectare. Where crop canopy is dense, or weed growth is heavy, better spray coverage will be achieved with higher spray volumes. Follow directions elsewhere on the label for the correct rate and timing of application.

Aerial drift is increased under certain meteorological conditions. Do not apply FBN Glufosinate 150 by aircraft when the wind speed is greater than 12 km/h.

For the protection of non-target habitats overspray or drift to sensitive habitats should be avoided. Accordingly, the following buffer zone is required. Leave a buffer zone of 30 metres between the edge of the last spray swath and the edge of sensitive habitats including emergent vegetation surrounding wetlands (sloughs, ponds, prairie potholes, lakes, rivers and streams) and adjacent areas consisting of short, long and mixed grass prairie. Do not contaminate these habitats when cleaning and rinsing spray equipment or containers. If a 30 metre buffer zone cannot be maintained by aerial application then apply by ground only. For ground application do not apply within 15 metres of the edge of crops or environmentally sensitive areas.

FBN Glufosinate 150 MAY BE USED AS A DESICCANT IN THE FOLLOWING CROPS:

- LENTILS
- POTATOES
- ALFALFA (**Grown for Seed**)

FBN Glufosinate 150 will also desiccate weeds present in the field at application (Wild Buckwheat may not be completely desiccated).

LENTILS

DO NOT APPLY TO LENTILS GROWN FOR SEED; THERE ARE NOT SUFFICIENT DATA TO SUPPORT SUCH USE.

Apply FBN Glufosinate 150 at 2-2.7 litres of product per hectare. Apply when the crop is in the 40- 60% pod turn (yellow to brown) stage. Use the higher rate when the crop canopy is dense and/or there are high populations of weeds present at application. DO NOT harvest treated crop within 9 days after application.

FBN Glufosinate 150 will provide assist in lentil plant drydown to facilitate straight combining, reducing the risks associated with adverse weather affecting the windrowed crop.

POTATOES

DO NOT APPLY TO POTATOES GROWN FOR SEED STOCK.
DO NOT HARVEST THE TREATED CROP WITHIN 9 DAYS AFTER APPLICATION.

Apply FBN Glufosinate 150 at 3 litres of product per hectare. Apply approximately 14-21 days prior to expected harvest. Desiccation of crops and weeds will be more rapid under warmer and drier conditions.

FBN Glufosinate 150 may be applied to promote uniform drydown of an unevenly maturing crop and will allow for planning of harvest timing. Desiccation of vines and weeds will facilitate mechanical harvesting.

ALFALFA (Grown for Seed)

Apply at 50-75% pod turn (brown) stage. Apply FBN Glufosinate 150 at 2.7 L/ha of product. Do not apply more than once per year.

PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN. Harmful or fatal if absorbed through the skin. Harmful if swallowed. This product may cause eye irritation. DO NOT get in eyes, on skin or on clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

- Wear protective clothing including a long sleeved shirt, long pants, goggles, chemical resistant gloves, and respirator when handling or spraying.
- Wear chemical resistant gloves for cleanup and repair.
- Workers should not enter treated fields within 24 hours of treatment. Workers who must enter fields within this time period should wear long-sleeved shirt, long pants and chemical resistant gloves.
- Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.** Keep in original container during storage. Do not contaminate water supply, ponds, lakes, streams and irrigation ditches by direct application, spray drift or when cleaning and rinsing spray equipment or containers.

CAUTION: Do not mix FBN Glufosinate 150 with pesticides, fertilizers or any other chemical additives unless recommended on this label.

ENVIRONMENTAL PRECAUTIONS:

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under **DIRECTIONS FOR USE.** Do not contaminate these systems through direct application, disposal of waste or cleaning equipment. Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.**

STORAGE

CANNOT be stored below freezing. If stored for one year or longer, shake well before using. Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs. Do not use or store in or around the home. Keep in original container during storage.

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION: Treat symptomatically. Medical personnel should contact CANUTEC collect at 1-613-996-6666 or *666, 24 hours a day.

DISPOSAL Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.

2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container Disposal: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Disposal of Unused, Unwanted Product: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Disposal of Unused Spray Solution: If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.

RESISTANCE MANAGEMENT

For resistance management, FBN Glufosinate 150 is a Group 10 herbicide. Any weed population may contain or develop plants naturally resistant to FBN Glufosinate 150 and other Group 10 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of FBN Glufosinate 150 or other Group 10 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance- management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FOR MORE INFORMATION CONTACT:

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M4
1-844-200-FARM (3276)

Contact number: 1-844-200-FARM (3276)

Transportation of Dangerous Goods Classification: PESTICIDES, LIQUID, TOXIC, N.O.S. (GLUFOSINATE-AMMONIUM), CLASS 6.1, UN2902, P.G. III

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33697
Product Name :	SMOKE 540
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2020-02-18
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2025-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	GLYPHOSATE (PRESENT AS POTASSIUM SALT) potassium N-[(hydroxyphosphinato)methyl]glycine CASN = 70901-12-1 (GUAR = 540 g/l NOMINAL)

Date Modified: 2020-08-31

SMOKE 540

Liquid Herbicide

AGRICULTURAL and INDUSTRIAL



POISON

WARNING - EYE AND SKIN IRRITANT

REGISTRATION NO. 33697 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: Glyphosate, 540 grams acid equivalent per litre, present as potassium salt.

Water Soluble Herbicide for non-selective weed control

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING.

NET CONTENTS: 1 L to 1000 L

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED.

HARMFUL IF INHALED.

CAUSES EYE AND SKIN IRRITATION.

Avoid contact with eyes, skin or clothing.

Avoid inhaling spray mist.

Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and chemical resistant footwear during mixing, loading, application, clean-up and repair.

Gloves are not required during application within a closed cab. In addition, wear protective eyewear (goggles or face shield) during mixing and loading.

The restricted entry interval is 12 hours after application for all agricultural uses.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind directions, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at: www.croplife.ca.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS

- **TOXIC** to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

In case of an emergency involving this product, call:

CANUTEC(613) 996-6666

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

For additional information on this or other Farmer's Business Network Canada, Inc. agricultural products, call 1-844-200-FARM (3276).

STORAGE

To prevent contamination, store this product away from food or feed. Soak up small amounts of spill with absorbent clays.

DISPOSAL

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer and the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

SMOKE 540**Liquid Herbicide****Solution****AGRICULTURAL and INDUSTRIAL****POISON****WARNING - EYE AND SKIN IRRITANT****REGISTRATION NO. 33697 PEST CONTROL PRODUCTS ACT****ACTIVE INGREDIENT:** Glyphosate, 540 grams acid equivalent per litre, present as potassium salt.

Water Soluble Herbicide for non-selective weed control

READ THE LABEL BEFORE USING.

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

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Smoke 540

1.0 PRODUCT DESCRIPTION

Water soluble herbicide for non-selective weed control in CROPLAND SYSTEMS AND IN NON-CROPLAND AREAS.

CROPLAND USES INCLUDE:

In cropping systems before planting of all crops; in minimum tillage systems; postemergent in Roundup Ready® canola and soybean; preharvest applications in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), peas, lentils, dry beans, soybeans, chickpeas, dried lupin, dried fava beans and forages; in pasture renovation; in forage, legume and grass establishments; in tree crops including apple, pear, cherry, plum, peach, apricot, filbert, hazelnut, walnut, chestnut, Japanese heartnut; in grapes, cranberries, blueberries and strawberry; in asparagus; in North American ginseng; in tree plantings; and grasses for seed production.

NON-CROPLAND USES INCLUDE:

Industrial; recreational, rights-of-way, public areas; and turf grass renovation.

Not for relabelling or repackaging.

2.1 EMERGENCY NUMBERS

In case of an emergency involving this product, call:

CANUTEC(613) 996-6666

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

2.2 INFORMATION

For additional information on this or other Farmer's Business Network Canada, Inc. agricultural products, call: 1-844-200-FARM (3276).

3.1 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.
HARMFUL IF SWALLOWED.
HARMFUL IF INHALED.
CAUSES EYE AND SKIN IRRITATION.
Avoid contact with eyes, skin or clothing.
Avoid inhaling spray mist.

Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and chemical resistant footwear during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab. In addition, wear protective eyewear (goggles or face shield) during mixing and loading.

The restricted entry interval is 12 hours after application for all agricultural uses.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at: www.croplife.ca

3.2 FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have a person dip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

3.3 TOXICOLOGICAL INFORMATION

Treat symptomatically.

3.4 ENVIRONMENTAL PRECAUTIONS

- **TOXIC** to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

3.5 PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

3.6 STORAGE

To prevent contamination, store this product away from food or feed. Soak up small amounts of spill with absorbent clays.

3.7 DISPOSAL AND DECONTAMINATION

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer and the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

DIRECTIONS FOR USE

4.0 GENERAL INFORMATION

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

Do not apply this product using aerial spray equipment except under conditions as specified within this booklet.

Observe buffer zones specified in Section 5.3.

Smoke 540, a water soluble liquid, mixes readily with water for application as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

This herbicide moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Delay application until vegetation has emerged to the stages described for control of such vegetation under the “**Annual and Perennial Weed Control**” (section 7.0 and 8.0) to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per hectare within the recommended range when weed growth is heavy or dense, or weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This product does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Rainfall occurring within 60 minutes of treatment may result in reduced weed control. Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of run-off.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, Smoke 540 is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to Smoke 540 and other Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Smoke 540 or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options. Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

5.0 MIXING AND APPLICATION

5.1 PRECAUTIONS

ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

DO NOT USE IN GREENHOUSES. REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests

Clean sprayers and parts immediately after using this product by thoroughly flushing with water.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind directions, temperature inversions, application equipment and sprayer settings.

NOTE: Use of this product in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

5.2 MIXING AND APPLICATION EQUIPMENT

MIXING WITH WATER

For ground or industrial type sprayers, fill the spray tank with one-half the required amount of water. Add the proper amount of herbicide, see “**Weed Control**” (sections 7.1 and 8.1) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent excessive foaming. Removing hose from tank immediately will avoid back siphoning into water source. Use of mechanical agitators may cause excessive foaming. Bypass lines should terminate at the bottom of the tank.

For use in knapsack sprayers, it is suggested that the proper amount of this herbicide be mixed with water in a larger container. Fill sprayer with the mixed solution.

TANK MIXING PROCEDURE

The following steps should be followed when adding tank mix partners, using a herbicide loading system or adding product directly into the tank:

1. Fill spray tank 3/4 full of water.
2. Start agitation and run for entire mixing and spraying operation.
3. Add required amount of the tank mix partner.
4. Flush herbicide loading tank and herbicide containers with water.
5. If using a herbicide loading system - ensure that the loading tank and lines to the pump are empty and flushed out with water before adding tank mix partner.
6. Add required amount of Smoke 540.
7. Flush herbicide loading tank and herbicide containers with water.
8. If using a herbicide loading system - ensure that the loading tank and lines to the pump are flushed with water and empty before starting spray operation.

Always start and end the mixing and spraying operation with a clean system.

APPLICATION EQUIPMENT

BOOM EQUIPMENT

For control of perennial weeds and woody brush and trees listed in this booklet using conventional boom equipment – apply this product in 50 to 300 litres of clean water per hectare as a broadcast spray using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

For control of annual weeds listed in this booklet using conventional boom equipment – Apply this product in 50 to 100 litres of clean water per hectare as a broadcast spray, except as otherwise stated on this label using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

HAND HELD AND HIGH VOLUME EQUIPMENT (use coarse sprays only)

For control of weeds and woody brush and trees listed in the “Weed Control” section 6.0 of this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements – Unless otherwise specified, make a 0.67 percent solution of this product in water (0.67 litres of this product in 100 litres of water) and apply to foliage of vegetation to be controlled. For best results, use a 1.34 percent solution (1.34 litres of this product in 100 litres of water) on harder to control perennials such as field bindweed, hemp dogbane, milkweed and Canada thistle.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of run-off. Handgun applications should be properly directed to avoid spraying desirable plants.

SELECTIVE EQUIPMENT

Selective equipment such as **WIPER** and **ROLLER** applicators can be used for weed control in soy and dry beans, orchards, vineyards, cranberries, strawberries and non-crop areas. For information regarding use of this product with selective equipment, refer to “**Selective Equipment**” (section 9.12).

AERIAL EQUIPMENT

Do not use human flaggers.

Aerial application can only be used for weed control in preharvest situations. Refer to sections 5.3, and 9.9.2 for more information.

Directions for use

Apply only by fixed-wing or rotary aircraft which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 - 1000) range. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate(s) recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of spotter planes is recommended.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking.

Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 30-100 litres per hectare.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

5.3 BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies).

Agricultural and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
		Aquatic habitats	Terrestrial habitats
Agricultural crop system and ground boom application method			
Pre-seeding applications for rye, cranberry, filberts, hazelnut and all other crops. Established pasture and summer fallow. Ginseng new garden	1	1	1
Ginseng - existing established garden, Canola – Roundup Ready hybrid for seed production	2	1	1
Filberts or hazelnut	4	1	1
Corn (glyphosate non-tolerant varieties including grain, silage and ornamental types), strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)	2	1	2

Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, chickpea, lupin (dried), fava bean (dried), asparagus, forage grasses and legume including seed production		3	1	2
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)		4	1	2
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes		3	1	3
Agricultural crop system and airblast application method (including mist blower)				
Pasture		1	20	30
Turfgrass (Prior to establishment or renovation)		2	25	35
Non-cropland system and ground boom application method				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	3*
Non-cropland system and airblast application method (including mist blower)				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	20	30*
Agricultural crop system and aerial application method	Wing type			
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40

* Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements, roads, and training grounds and firing ranges on military bases.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

6.0 WEEDS CONTROLLED

This product controls many annual and perennial grasses, broadleaf weeds, and woody brush and trees when applied as recommended and under conditions described. For information on how to control specific weeds including herbicide rate, refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (sections 7.0 and 8.0). The following is a partial list of weeds controlled:

6.1 ANNUAL WEEDS

ANNUAL GRASSES

Barnyard Grass <i>Echinochloa crusgalli</i>	Persian Darnel <i>Lolium persicum</i>
Blue Grass (annual) <i>Poa annua</i>	Volunteer Barley <i>Hordeum spp.</i>
Crab Grass (large) <i>Digitaria sanguinalis</i>	Volunteer Corn <i>Zea mays</i>
Crab Grass (smooth) <i>Digitaria ischaemum</i>	Volunteer Wheat <i>Triticum spp.</i>
Downy Brome-grass <i>Bromus tectorum</i>	Wild Oats <i>Avena fatua</i>
Fall Panicum <i>Panicum dichotomiflorum</i>	Wild Proso Millet <i>Panicum miliaceum</i>
Giant Foxtail <i>Setaria faberii</i>	Yellow Foxtail <i>Setaria glauca</i>
Green Foxtail <i>Setaria viridis</i>	OTHER Dodder <i>Cuscuta spp.</i>

ANNUAL BROADLEAF WEEDS

Chickweed <i>Stellaria media</i>	Pennsylvania Smartweed <i>Polygonum pensylvanicum</i>
Cleavers <i>Galium aparine</i>	Prickly Lettuce <i>Lactuca scariola</i>
Cocklebur <i>Xanthium strumarium</i>	Ragweed (common) <i>Ambrosia artemisiifolia</i>

Corn Spurry <i>Spergula arvensis</i>	Redroot Pigweed <i>Amaranthus retroflexus</i>
Cow Cockle <i>Saponaria vaccaria</i>	Round-Leaved Mallow <i>Malva pusilla</i>
Eastern Black Nightshade <i>Solanum ptycanthum</i>	Russian Thistle <i>Salsola pestifer</i>
Fleabane (Canada) <i>Erigeron canadensis</i>	Shepherd's Purse <i>Capsella bursa-pastoris</i>
Flixweed <i>Descurainia sophia</i>	Smooth Pigweed <i>Amaranthus hybridus</i>
Green Smartweed <i>Polygonum scabrum</i>	Sowthistle (annual) <i>Sonchus oleraceus</i>
Hempnettle <i>Galeopsis tetrahit</i>	Stinkweed <i>Thlaspi arvense</i>
Kochia <i>Kochia scoparia</i>	Storksbill <i>Erodium cicutarium</i>
Lady's-Thumb <i>Polygonum persicaria</i>	Velvetleaf <i>Abutilon theophrasti</i>
Lamb's-quarters (common) <i>Chenopodium album</i>	Volunteer Canola (rapeseed) <i>Brassica spp.</i>
Narrow-leaved Hawk's Beard <i>Crepis tectorum</i>	Volunteer Flax <i>Linum spp.</i>
Narrow-leaved Vetch <i>Vicia angustifolia</i>	Wild Buckwheat <i>Polygonum convolvulus</i>
Night-flowering Catchfly <i>Silene noctiflora</i>	Wild Mustard <i>Sinapis arvensis</i>
	Wild Tomato <i>Solanum triflorum</i>

6.2 PERENNIAL WEEDS PERENNIAL GRASSES/SEDGES

Blue Grass (Canada) <i>Poa compressa</i>	Foxtail Barley <i>Hordeum jubatum</i>
Blue Grass (Kentucky) <i>Poa pratensis</i>	Quackgrass <i>Elytrigia repens</i>
Brome Grass (smooth) <i>Bromus inermis</i>	Wire-Stemmed Muhly <i>Muhlenbergia frondosa</i>
Cattail (common) <i>Typha latifolia</i>	Yellow Nutsedge <i>Cyperus esculentus</i>
Cottongrass <i>Eriophorum chamissonis</i>	

PERENNIAL BROADLEAVED WEEDS

Alfalfa <i>Medicago spp.</i>	Milkweed (common) <i>Asclepias syriaca</i>
Curled Dock <i>Rumex crispus</i>	Poison Ivy <i>Rhus radicans</i>
Dandelion <i>Taraxacum officinale</i>	Purple Loosestrife <i>Lythrum salicaria</i>
Field Bindweed <i>Convolvulus arvensis</i>	Sow Thistle (perennial) <i>Sonchus arvensis</i>
Hemp Dogbane <i>Apocynum cannabinum</i>	Thistle (Canada) <i>Cirsium arvense</i>
Hoary Cress <i>Cardaria draba</i>	Toad Flax <i>Linaria vulgaris</i>
Knotweed (Japanese) <i>Polygonum cuspidatum</i>	Wormwood (Absinth) <i>Artemisia absinthium</i>

6.3 WOODY BRUSH AND TREES

Alder <i>Alnus spp.</i>	Pine <i>Pinus spp.</i>
Birch <i>Betula spp.</i>	Poplar <i>Populus spp.</i>
Broadleaved meadowsweet <i>Spiraea latifolia</i>	Raspberry/Salmonberry <i>Rubus spp.</i>
Cedar <i>Thuja spp.</i>	Rhododendron (Canadian) <i>Rhododendron canadense</i>
Cherry <i>Prunus spp.</i>	Sheep laurel <i>Kalmia angustifolia</i>
Douglas Fir <i>Pseudotsuga spp.</i>	Snowberry (Western) <i>Symphoricarpos occidentalis</i>
Hemlock <i>Tsuga spp.</i>	Sweet fern <i>Comptonia peregrina</i>
Maple <i>Acer spp.</i>	Willow <i>Salix spp.</i>
Mountain-fly honeysuckle <i>Lonicera villosa</i>	Withrod <i>Viburnum cassinoides</i>

CROPLAND USES

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

DO NOT apply using aerial application equipment.

7.0 ANNUAL WEED CONTROL

The following tables provide rates and specific application instructions for control of the annual weeds listed.

7.1 ANNUAL WEED CONTROL WITH SMOKE 540

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.5	Weeds up to 8 cm in height	Wild oats, green foxtail, volunteer barley, volunteer wheat Non-Roundup Ready volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed	For wild oats apply at 1- to 3- leaf stage. Add 350 mL of a surfactant registered for use such as Agral 90, Ag Surf, or Companion For heavy wild oat infestations use 0.67 L/ha rate.
0.67	Weeds 8 cm to 15 cm in height	All annual grasses listed above. All annual broadleaved weeds listed above plus flixweed*, and kochia*	Add 350 mL of surfactant registered for use as listed above. * Suppression only. Refer to higher rates of this table or tank mix table (section 7.2) for control options.

0.83 – 1.27	Weeds up to 15 cm in height	<p>All annual grasses listed above plus downy brome, giant foxtail, and Persian darnel.</p> <p>All annual broadleaved weeds listed above plus cleavers, lamb's-quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, and narrowleaved hawk's beard***</p>	<p>No surfactant required.</p> <p>For tank mix weed control options see section 7.2.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p>
1.5	Weeds up to 15 cm in height	<p>All annual grasses listed above plus crab grass and annual blue grass</p> <p>All annual broadleaved weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sowthistle, and narrowleaved vetch</p>	For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).
2.33	Weeds over 15 cm in height	All annual grasses and broadleaved weeds listed above	For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).

NOTE: For spot treatment, 0.5 to 2.33 litres per hectare is approximately equivalent to 5 – 23 mL/100m², respectively.

Agral is a registered trademark of Syngenta Group Company.
Ag Surf is a registered trademark of Interprovincial Cooperative Ltd.
Companion is a trademark of Dow AgroSciences LLC.

7.2 ANNUAL WEED CONTROL WITH SMOKE 540 TANK MIXTURES

FOR SUMMERFALLOW & MINIMUM TILLAGE SYSTEMS

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + Banvel® II Herbicide	0.5 – 0.67 + 0.29	Volunteer cereals, wild oats, green foxtail Non- Roundup Ready® volunteer canola (rapeseed), wild mustard, flixweed*, lamb's-quarters, lady'sthumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix is registered for summerfallow use only . Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * Smoke 540 applied at 0.67 L/ha rate only. ** Suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant-see list in section 7.3.
Smoke 540 + Banvel® II Herbicide	0.61 – 1.27 + 0.31	Volunteer cereals, wild oats, green foxtail, downy brome, Persian darnel Non- Roundup Ready® volunteer canola (rapeseed), wild mustard, flixweed, lamb's-quarters, lady'sthumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed, wild buckwheat*, smartweed	Use this tank mix prior to seeding in wheat, barley, rye, oats, field corn only (do not apply to sweet corn) . Certain broadleaved crops such as lentils, peas, canola and flax can be injured by a pre-seeding application and so should not be planted to a field receiving this treatment. Annual grasses - apply any time between emergence and heading.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
			<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>The higher rate should be applied when weeds are under poor growing conditions such as drought.</p> <p>*1- to 4- leaf stage.</p>
Smoke 540 + Pardner Herbicide	0.5 – 0.67 + 1.25	Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady’s-thumb, stinkweed, wild buckwheat* Redroot pigweed**, kochia**, wild oats**	<p>This tank mix is registered only for use in summerfallow, and prior to wheat, oats and barley in minimum tillage systems.</p> <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* Use Smoke 540 at 0.67 L/ha rate only for wild buckwheat control.</p> <p>** 0.67 L/ha rate, suppression only. See other tank mixtures for control options.</p> <p>Add 350 mL/ha of surfactant- see list in section 7.3</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + 2,4-D ^A	0.83 – 1.27 + 0.6 – 0.9 ⁴ or 1.2 – 1.5 ⁵	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel Volunteer canola, (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady'sthumb, stinkweed, kochia, lamb's-quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrowleaved hawk's beard***, Volunteer Roundup Ready canola (1-4 leaf stage) ⁴ , bluebur ⁴ , burdock ⁴ , cocklebur ⁴ , common plantain ⁴ , daisy fleabane ⁴ , false flax ⁴ , false ragweed ⁴ , goat's beard ⁴ , mustards ⁴ (except dog and tansy), prickly lettuce ⁴ , ragweeds ⁴ , Russian pigweed ⁴ , shepherd's purse ⁴ , stinging nettle ⁴ , sweet clover ⁴ , thyme-leaved spurge ⁴ , wild radish ⁴ , wild sunflower ⁴	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. No surfactant required. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate. ⁴ 2,4-D at 0.6 – 0.9 L/ha (280 – 420 g ai/ha). ⁵ 2,4-D at 1.2 – 1.5 L/ha (560 – 700 g ai/ha). Use a minimum of 80 L/ha water when using 2,4-D amine formulations at these rates. Use this tank mix prior to seeding or after seeding but before crop emergence in wheat, winter wheat, barley and rye.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
		Volunteer Roundup Ready canola (4-6 leaf stage) ⁵ , annual sowthistle ⁵ , common chickweed ⁵ , common purslane ⁵ , dog and tansy mustard ⁵ , oak-leaved goosefoot ⁵ , common groundsel ⁵ , hairy galinsoga ⁵ , hawkweed ⁵ , heal-all ⁵ , knotweed ⁵ , peppergrass ⁵ , pineapple weed ⁵ , prostrate pigweed ⁵ , purslane ⁵ , sheep sorrel ⁵ , smartweed ⁵ , tumble pigweed ⁵ , velvetleaf ⁵ , volunteer canola (rapeseed) ⁵	
Smoke 540 + 2,4-D ^B	0.5 – 0.67 + 1.2	Volunteer cereals, wild oats*, green foxtail* Volunteer canola (rapeseed), wild mustard, flixweed, redroot pigweed, lady'sthumb, stinkweed, kochia Lamb's-quarters**, Russian thistle**	This tank mix is registered for summerfallow use only. Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * Use Smoke 540 at 0.67 L/ha rate only for wild oat and green foxtail control. ** Suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant-see list in section 7.3

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + MCPA ^C 500 g/L formulation; if another formulation is used, adjust rate accordingly.	0.83 – 1.27 + 0.5 – 0.7 ¹ OR 0.5 – 1.0 ²	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel Volunteer canola (rapeseed) (non- Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrowleaved hawk's beard*** Volunteer Roundup Ready canola (1-4 leaf stage) ^{1,2} , bluebur ³ , burdock ³ (before 4 leaf stage), false flax ³ , flixweed ³ , lamb's quarters ³ , mustards ³ (except dog and tansy), prickly lettuce ³ , ragweeds ³ , redroot pigweed ³ , Russian pigweed ³ , shepherd's purse ³ , stinkweed (field pennycress) ³ , vetch ³ , wild radish ³ , wild sunflower ³	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. No surfactant required. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate. ¹ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to peas. ² MCPA at 0.5 – 1.0 L/ha (250 – 500 g ai/ha) prior to wheat, barley, oats, corn (field and sweet) ^C , rye and flax. ³ MCPA at 0.7 – 1.0 L/ha (350 – 500 g ai/ha) only. Use this tank mix prior to seeding in wheat, barley, rye, oats, corn (field and sweet) ^C , flax and field peas ^C .

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + Buctril M Herbicide	0.83 – 1.27 + 0.5 – 1.0 ¹	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel.</p> <p>Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrowleaved hawk's beard***</p> <p>Volunteer Roundup Ready Canola (1-4 leaf stage)^{1,2}</p> <p>Seedlings up to the 4-leaf stage²: green smartweed, pale smartweed, lady's thumb, cow cockle, redroot pigweed, flixweed, bluebur, shepherd's purse, kochia³, Russian thistle³, scentless chamomile⁴, volunteer sunflower, night flowering catchfly, cocklebur, velvetleaf⁵, ball mustard, American nightshade</p> <p>Seedlings up to the 6leaf stage²: wild tomato Seedlings up to the 8 leaf stage²: wild buckwheat, tartary</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>No surfactant required.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p>¹ Buctril M at 0.5 – 1.0 L/ha (280 – 560 g ai/ha) for all crops listed.</p> <p>² Buctril M at 1.0 L/ha (560 g ai/ha only).</p> <p>³ Spray before plants are 5 cm high.</p> <p>⁴ Spring annuals only.</p> <p>⁵ Spray before plants are 8 cm high.</p> <p>Use this tank mix prior to seeding in wheat, barley, rye, oats, corn, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue,</p>

	<p>buckwheat, common buckwheat, stinkweed, wild mustard, wormseed mustard, lamb's quarters, common ragweed, common groundsel</p> <p>Perennials (top growth)²: Canada thistle, perennial sowthistle</p>	<p>meadow foxtail, seedling tall fescue, seedling meadow bromegrass, seedling streambank wheatgrass and reed canary grass.</p>
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TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + MCPA amine (500 g/L formulation; if another formulation is used, adjust rate accordingly).	0.83 – 1.27 + 0.5 – 0.7	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel. Volunteer canola (rapeseed)(non Roundup Ready), wild mustard, flixweed, redroot pigweed, lady’s thumb, stinkweed, kochia, lamb’s quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrowleaved hawk’s beard*** Volunteer Roundup Ready canola (1-4 leaf stage) ³ , bluebur ⁴ , burdock ⁴ (before 4-leaf stage), false flax ⁴ , flixweed ⁴ , lamb’s quarters ⁴ , mustards ⁴ (except dog and tansy), prickly lettuce ⁴ , ragweeds ⁴ , redroot pigweed ⁴ , Russian pigweed ⁴ , shepherd’s purse ⁴ , stinkweed ⁴ (field pennycress), vetch ⁴ , wild radish ⁴ , wild sunflower ⁴	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. No surfactant required. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate. ³ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to lentils and chickpeas. ⁴ MCPA amine at 0.7 L/ha (350 g ai/ha) only. Use this tank mix prior to seeding in lentil and chickpea. Under drought conditions, deep seeding and/or brief rain showers after seeding may cause injury to emerging seedlings in sprayer overlaps. No surfactant required.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + Express Toss-N-Go Herbicide Or Express Toss-N-Go Dry Flowable 75% Herbicide	0.83 – 1.27 + 10 g/ha (7.5 g ai/ha)	Volunteer cereals, Canada thistle (suppression), cow cockle, wild buckwheat, Canada fleabane common ragweed narrow-leaved hawk's beard, dandelion, downy brome, flixweed, giant foxtail, green foxtail, hempnettle, kochia, lady's thumb, lamb's quarters, persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer canola, volunteer flax, wild mustard, wild oats	Use this tank mix in summerfallow or prior to seeding wheat and barley . Refer to Express Toss-N-Go label for the appropriate weed growth stage. Add 350 mL/ha of surfactant –see list in section 7.3

* For foxtail barley, refer to “**Perennial Weed Control**” table (section 8.1).

^B 0.56 kg ai/ha of 2,4-D. ^B, ^A Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

^C Use only amine formulations of MCPA prior to seeding in corn and field peas.

Banvel II is a registered trademark of BASF Corporation.

Pardner and Buctril are registered trademarks of Bayer.

Express and Toss-N-Go are registered trademarks of FMC Corporation.

7.3 SURFACTANT INFORMATION

NOTE:

Addition of Surfactant – Smoke 540 tank mixtures for annual weed control may require the addition of a surfactant registered for use such as Agral 90, AgSurf or Companion. Refer to Section 7.2 for recommendations. Surfactant should be added at a rate of 350 millilitres per hectare, in 50 100 litres of clean water.

7.4 ADDITIONAL IMPORTANT INFORMATION FOR ANNUAL WEED CONTROL

Smoke 540 applied alone will not control volunteers from crops containing the Roundup Ready varieties.

Allow at least 1 day after treatment before tillage.

Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds, in some situations.

For additional information and precautions, refer to “**General Information**” and “**Mixing and Application**” (sections 4.0 and 5.0).

7.5 WEED CONTROL IN ROUNDUP READY® CANOLA VARIETIES

WARNING: APPLY SMOKE 540 ON ROUNDUP READY® CANOLA VARIETIES ONLY

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) ROUNDUP READY® CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS ROUNDUP READY® WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- **For additional information and precautions refer to “General Information” and “Mixing and Application” (sections 4.0 and 5.0).**
- Apply Smoke 540 in Roundup Ready® canola varieties only as directed in the following weed control table.
- Some short-term, visual yellowing may occur when Smoke 540 is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT apply using aerial application equipment.

The following table describes the rate and specific application instructions for control of annual and perennial weeds in Roundup Ready® canola varieties.

WEED CONTROL IN ROUNDUP READY CANOLA VARIETIES

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
0.55 – 1.27	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’squarters, non- Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers*, wild buckwheat*, shepherd’s purse*, cow cockle*, night- flowering catchfly*, smartweed*, stork’s-bill*, flixweed*, narrow-leaved hawk’s beard*, round- leaved mallow***</p> <hr/> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sow thistle, dandelion</p> <hr/> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sow thistle****</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p> <p>Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use 0.83 L/ha for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd’s purse, cow cockle and nightflowering catchfly at the 1– to 3leaf stage of the crop or for control of smartweed at the 4– to 6-leaf stage.</p> <p>** A single application of 0.83 L/ha rate is required.</p> <p>*** Sequential applications of 0.83 L/ha rate are required.</p> <p>**** Sequential applications of 0.83 L/ha or a single application of 1.27 L/ha are required.</p> <p>For sequential applications, ensure the crop has not advanced beyond the recommended growth stage.</p> <p>Maximum 1.66 L/ha is allowed for the postemergence use.</p>

7.5.1 TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in Roundup Ready® canola varieties, apply a tank mixture of 0.28 L/ha of Lontrel 360 Herbicide with 0.83 L/ha of Smoke 540, in 100 litres of water per hectare. Apply when canola is in the 2- to 6-leaf stage. When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Lontrel is a registered trademark of Dow AgroSciences LLC.

7.5.2 ROUNDUP READY® HYBRID CANOLA SEED PRODUCTION

For Use only in Roundup Ready® Hybrid Canola Seed Production Systems

Apply using ground boom spray equipment.

Smoke 540 may be applied for the control of non- Roundup Ready® canola pollen parental line(s) in hybrid canola seed production fields containing both Roundup Ready® line(s) and non- Roundup Ready® line(s).

When pollination is complete or near completion, non- Roundup Ready® canola pollen parental line(s) may be controlled with an application of 0.83 to 1.67 litres per hectare of Smoke 540 applied in 50 to 200 litres per hectare water.

Sequential applications (**maximum 2 applications**) may be used for the control of pollen parental line(s) but the total maximum rate applied must not exceed 1.67 litres per hectare. Allow at least 5 days between sequential applications.

7.6 WEED CONTROL IN ROUNDUP READY SOYBEAN VARIETIES

WARNING: APPLY SMOKE 540 ON ROUNDUP READY SOYBEAN VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY. SOYBEANS WHICH ARE NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT apply using aerial application equipment.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED*	COMMENTS (Use 100 – 200 L/ha water volumes)
1.67	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum,	<p>¹ A single application of 1.67 L/ha will provide suppression only.</p> <p>² For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be applied at least 2 weeks after the first application.</p>

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED*	COMMENTS (Use 100 – 200 L/ha water volumes)
		<p>wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, Russian thistle, non- Roundup Ready® canola (rapeseed), hempnettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night flowering catchfly, stork's bill, flixweed, narrow leaved hawk's-beard</p> <p>common milkweed^{1,2}, yellow nutsedge^{1,2}, field bindweed², perennial sow thistle, Canada thistle. wire-stemmed muhly.</p> <p>Bur cucumber (<i>Sicyos angulatus</i>)³</p> <p>Volunteer adzuki beans (<i>Vigna angularis</i>)⁴</p> <p>Biennial Wormwood (<i>Artemisia biennis</i>)⁵</p>	<p>A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment.</p> <p>Any second application made must be applied no later than the flowering stage of the soybean.</p> <p>Common milkweed should be 15-60 cm in height and actively growing.</p> <p>Yellow nutsedge should be 5 - 15 cm in height and actively growing.</p> <p>Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing.</p> <p>Wire-stemmed muhly should be 10-20 cm in height and actively growing.</p> <p>Plants not fully emerged at the time of application will escape treatment.</p> <p>³Sequential applications of 1.67 L/ha followed by 1.67 L/ha at the 1-18 leaf stage. Applications should be at least 2 weeks apart for best results.</p>

			<p>⁴For control of volunteer adzuki beans (unifoliolate to the 4th trifoliolate leaf stage) apply 1.67 L/ha. A second 1.67 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliolate to fourth trifoliolate leaf stage and actively growing</p> <p>⁵ Only one application per season at 1.67L/ha. Biennial wormwood should be at 2-8 leaf stage and actively growing.</p>
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RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED*	COMMENTS (Use 100 – 200 L/ha water volumes)
3.33	First trifoliolate leaf stage through flowering	All weeds listed above plus horse-nettle ⁶ and tall waterhemp ⁶⁷	<ul style="list-style-type: none"> • Only one application per season at 3.33 L/ha. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5- 15 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment. <p>⁶For season-long control of horse-nettle (<i>Solanum carolinense</i>) (2- to 12-leaf stage) or, for control of tall waterhemp (<i>Amaranthus tuberculatos</i>) (up to and including the 18-leaf stage) apply 3.33 L/ha. Alternatively, sequential applications of 1.67 L/ha followed by 1.67 L/ha may be applied. Applications should be at least 2 weeks apart for best results.</p> <p>⁷For the control of tall waterhemp use the higher rate if weeds are beyond the 6-leaf stage.</p>

*Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

7.6.1 TANK MIXTURES

Smoke 540 Plus Pursuit® Herbicide

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit herbicide may be tank mixed with Smoke 540 at a rate of 1.67 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit and apply up to and including the 3rd trifoliolate leaf stage of the Roundup Ready soybeans varieties in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit as per instructions on the Pursuit label and then add Smoke 540 as per instructions on this label.

A PHI of 100 days is required for the tank mix of Smoke 540 and Pursuit herbicide on Roundup Ready soybeans.

Only one application per season of Smoke 540 at 1.67 litres per hectare tank mixed with Pursuit herbicide at 0.16 to 0.21 litres per hectare is permitted.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Smoke 540 Plus FirstRate™ Herbicide Water Dispersible Granule (For Use in Eastern Canada Only)

For added residual control of common ragweed, velvetleaf, cocklebur, jimsonweed and giant ragweed, FirstRate Herbicide Water Dispersible Granule may be tank mixed with Smoke 540 at a rate of 0.83 - 1.67 liters per hectare. Use 20.8 grams per hectare of FirstRate Herbicide Water Dispersible Granule.

Do not harvest soybean plants for forage or hay. Do not harvest soybeans for 65 days after application.

Only one application per season of Smoke 540 tank mixed with FirstRate Herbicide Water Dispersible Granule is permitted.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Smoke 540 and Classic 25 DF Herbicide*

For season-long control of dandelion, annual sow thistle, and yellow nutsedge*, apply Classic 25 DF Herbicide at 36 grams per hectare plus either Smoke 540 at 1.67 litres per hectare. Add a non-ionic surfactant such as Agral 90, Citowett Plus, or AgSurf at 0.2% v/v. Apply when soybeans are in the 1-3 trifoliolate stage; dandelions and annual sow thistle less than 15 cm tall and across; and up to the 8 leaf stage for yellow nutsedge. **USE THIS TANK MIXTURE ONLY ON SOYBEANS WITH THE ROUNDUP READY® TRAIT.**

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

*Use this tank mix only in cases of heavy infestation of yellow nutsedge.

Smoke 540 plus Sencor® 75 DF Herbicide for Control of Spreading Atriplex (Eastern Canada only)

For the control of spreading atriplex, apply a preplant application of Sencor 75 DF Herbicide at 0.75 - 1.11 kg product per hectare on medium textured soils or 1.11 – 1.5 kg product per hectare on fine textured soils plus Smoke 540 at 1.67 litres per hectare. Do not apply on coarse textured soils. Apply when spreading atriplex is up to the 10-leaf stage of growth. Only one application per year is permitted.

Refer to the Sencor 75 DF Herbicide label for further use directions, safety precautions and handling instructions. Consult Table entitled "Sencor 75 DF Alone: Preemergence Application" for specific rates based on soil types and organic matter.

Volunteer Roundup Ready Corn Control

For control of volunteer Roundup Ready corn, Assure II herbicide may be tank mixed with Smoke 540. Use 1.67 to 3.33 litres per hectare Smoke 540 and 0.25 - 0.38 litre per hectare of Assure II herbicide.

The higher rate of Assure II may be required when there are high populations of volunteer Roundup Ready corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 300 litres per hectare of clean water.

Smoke 540 plus Assure® II Herbicide

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED*	COMMENTS
1.67 – 3.33 L/ha Smoke 540 + 0.25 - 0.38 L/ha Assure II Herbicide	First trifoliolate leaf stage through flowering.	Volunteer Roundup Ready corn. Apply at the 2- to 6leaf stage of the weed.	See additional information following this table.

*Sure Mix may or may not be added to this tank mix

* Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

Mixing: Add and mix Assure II herbicide as per instructions on the Assure II herbicide label and then add Smoke 540 as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliolate leaf stage through flowering and when the volunteer Roundup Ready corn is at the 2- to 6-leaf stage.

A PHI (preharvest interval) of 80 days is required for the tank-mix of Smoke 540 and Assure II herbicide on Roundup Ready soybeans.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

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8.0 PERENNIAL WEED CONTROL

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT apply using aerial application equipment.

When applied as recommended under the conditions described, this product will control the perennial weeds listed in the following table.

8.1 PERENNIAL WEED CONTROL WITH SMOKE 540

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Quackgrass (control, light to moderate infestations)	3 to 4 green leaves or more	1.67	50 - 300	<p>Apply in clean water using flat fan nozzles.</p> <p>Allow 3 or more days after treatment before tillage.</p> <p>Refer to “Quackgrass” notes in section 8.2.1 for more information.</p> <p>For higher volumes (i.e., 150 – 300 L/ha) an approved surfactant must be added at 0.5 L per 100 L of clean water (0.5% v/v). Refer to list in section 8.2.2. See also below.</p>

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/h)	WATER VOLUME (L/ha)	
Quackgrass (long term control, heavy infestations, high water volumes)	3 to 4 green leaves or more	1.67 4.67	50 - 300	<p>Allow 3 or more days after treatment before tillage.</p> <p>Rates higher than 1.67 L/ha will provide more consistent, longer term control, especially with heavier infestations and/or higher water volumes (i.e., 150 – 300 L/ha).</p> <p>Refer to “Quackgrass” notes in section 8.2.1 for more information.</p>
Canada Thistle	Rosette stage (summerfallow)	1.67	50 - 100	<p>Apply in clean water using flat fan nozzles.</p> <p>Allow 10 or more days after treatment before tillage.</p> <p>Refer to “Canada Thistle” notes in section 8.2.3 for more information.</p>
Canada Thistle	Bud stage or beyond	3.1 7 –	100 - 300	<p>Allow 5 or more days after treatment before tillage.</p>
Field Bindweed	Full bloom or beyond	4.67 8.0	100 - 300	<p>Allow 7 or more days after treatment before tillage.</p>
Common Milkweed*	Bud to full bloom (preharvest)	1.67	50 – 100	<p>See “Preharvest Treatment” (section 9.9) for more information.</p>
	Bud to full bloom	8.0	100 - 300	<p>Allow 7 or more days after treatment before tillage.</p> <p>Reduced control may occur after full bloom.</p> <p>Common milkweed may not all be in the correct stage, therefore, repeat treatments may be required.</p>
Toadflax	Vegetative Stage (summerfallow)	1.67	50 - 100	<p>Apply in clean water using flat fan nozzles.</p>

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
	Bud to full bloom (preharvest)			<p>Allow 7 or more days after treatment before tillage in summerfallow.</p> <p>For more information, see “Toadflax Control” (section 8.2.4), or “Preharvest Treatment” (Section 9.9).</p>
Alfalfa	<p>Early bud to full bloom stage</p> <p>Fall applications only</p>	2.47 – 3.33	50 - 300	<p>Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present.</p> <p>For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see section 8.2.6.</p>
Dandelion	<p>< 15 cm</p> <p>> 15 cm</p> <p>Rosette to full bloom (preharvest)</p>	<p>1.67</p> <p>2.47 – 3.33</p> <p>1.67</p>	<p>50 – 100</p> <p>50 – 300</p> <p>50 - 100</p>	<p>Allow 3 or more days after treatment before tillage for all rates.</p> <p>Use the higher rate when infestations are heavy.</p> <p>Refer to “Dandelion” notes in section 8.2.5 for more information.</p> <p>Allow 7 or more days after treatment before tillage. For more information, see “Preharvest Treatment” (section 9.9).</p>
Foxtail Barley	Seeding to heading	1.67 – 3.33	50 - 100	<p>Allow a minimum of 1 day after treatment before tillage or seeding.</p> <p>Use higher rates for larger, more established plants, heavy infestations or if plants are stressed.</p>

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Other Perennials (see listing section 6.2)	Early heading or early bud stage	4.67 - 8	100 - 300	Allow 7 or more days after treatment before tillage.

***NOTE:** For spot treatment, mix 80 millilitres of product in 5 litres of clean water per 100 m² (1.67 – 8 litres per hectare is approximately equivalent to 17 – 80 mL/100m², respectively).

8.2 SPECIAL NOTES FOR PERENNIAL WEED CONTROL

8.2.1 QUACKGRASS

For **season-long control on fall tilled ground:** Apply 1.67 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

8.2.2 SURFACTANT INFORMATION

The following is a list of approved surfactants for use with Smoke 540 for control of quackgrass:

Agral 90 Companion
Ag Surf

Always refer to surfactant label for specific instructions regarding use of that product.

8.2.3 CANADA THISTLE

Control of Canada Thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. **Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.**

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SMOKE 540 PLUS BANVEL II HERBICIDE TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summerfallow or in postharvest stubble, apply 1.13 litres per hectare Smoke 540 plus 1.25 litres per hectare Banvel II Herbicide in 100 – 200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90, Ag Surf or Companion.

For best results in summerfallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

8.2.4 TOADFLAX

Control of Toadflax in a Summerfallow Vegetative Stage. To ensure the proper timing of application, the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 10th to July 21st.

2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

8.2.5 DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

8.2.6 ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 1.67 to 3.33 litres per hectare Smoke 540 and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 1.67 to 3.33 litres per hectare Smoke 540. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14 day interval between application and planting is required.

Use the higher Smoke 540 rates when perennial grasses are prevalent.

8.2.7 ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to “**Perennial Weed Control with Smoke 540**” (section 8.1).

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow-up tillage after application should be delayed 5 to 7 days for best results. See “**Weed Control**” tables (sections 7.1 and 8.1) for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

9.0 CROPLAND SITUATIONS

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 and 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY USING AERIAL APPLICATION EQUIPMENT EXCEPT FOR PREHARVEST AERIAL APPLICATION (SECTION 9.9.2).

This product can be applied as a broadcast spray or spot treatment prior to planting all crops, postharvest to annual crops, preharvest in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, soybeans, dry beans and forages, and in summerfallow. It may also be applied as a broadcast spray in Roundup Ready® canola or soybean varieties (sections 7.5 and 7.6). It may be applied as a directed spray in orchards, vineyards, blueberries and strawberries, and using selective equipment in soy and dry beans, orchards, vineyards, cranberries and strawberries (refer to specific sections below for more information). **For specific instructions on weed control in the following cropping situations, always refer to “Annual and Perennial Weed Control” (sections 7.0 and 8.0) for more information.**

9.1 PRIOR TO PLANTING – ALL CROPS

This product may be applied prior to planting all crops for control of emerged weeds listed on this label. Ensure weeds are at the desired stage at the time of application. This product does not provide preemergent weed control and newly germinating weeds may be a problem in the crop. **APPLY BEFORE SEEDING OR TRANSPLANTING.**

9.1.1 PRIOR TO PLANTING – TANK MIXES* - SOYBEANS

***TANK MIXES – WHEN APPLIED AS A TANK-MIX COMBINATION, READ AND OBSERVE ALL LABEL DIRECTIONS, INCLUDING RATES, PERSONAL PROTECTIVE EQUIPMENT, RESTRICTIONS AND PRECAUTIONS FOR EACH PRODUCT USED IN THE TANK-MIX. ALWAYS USE IN ACCORDANCE WITH THE MOST RESTRICTIVE LABEL RESTRICTIONS AND PRECAUTIONS.**

WHERE TANK MIX PARTNER LABELS REFER TO ONLY 360 G/L GLYPHOSATE PRODUCTS, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.

Smoke 540 plus Pursuit Herbicide

Smoke 540 plus Pursuit Herbicide can be applied prior to or after seeding, but before crop emergence. Smoke 540 will control emerged weeds listed on this label when applied as directed (refer to Annual and Perennial Weed control sections in the Smoke 540 product label). Pursuit Herbicide will control weeds germinating from seed.

ONLY SOYBEANS, WHITE BEANS, KIDNEY BEANS, PROCESSING PEAS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 100 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE.

Smoke 540 plus metribuzin (Sencor 75 DF Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide, or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds taller than 4 cm in soybeans, apply Smoke 540 in tank mix with Sencor 75 DF Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide or Lexone DF Herbicide as a preplant surface or pre-emergence application before crop emergence.

Smoke 540 plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in soybeans. Apply Smoke 540 in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.15– 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

Perennial weeds such as quack grass may not be controlled with lower rates of Smoke 540. Use higher rates of Smoke 540 if perennial weeds are present.

Smoke 540 plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus metribuzin (Sencor 75 DF Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide, or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds in soybeans.

Apply as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence. Perennial weeds such as quack grass may not be controlled with lower rates of Smoke 540.

Smoke 540 plus linuron

For burndown and residual control of selected annual weeds apply Smoke 540 plus linuron after seeding but before crop emergence.

Smoke 540 plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with Smoke 540. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

Smoke 540 plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence. **For conservation tillage systems:** Apply this tank mixture in a minimum of 200 L/ha of total volume.

9.1.2 PRIOR TO PLANTING – TANK MIXES* - CORN

***TANK MIXES – WHEN APPLIED AS A TANK-MIX COMBINATION, READ AND OBSERVE ALL LABEL DIRECTIONS, INCLUDING RATES, PERSONAL PROTECTIVE EQUIPMENT, RESTRICTIONS AND PRECAUTIONS FOR EACH PRODUCT USED IN THE TANK-MIX. ALWAYS USE IN ACCORDANCE WITH THE MOST RESTRICTIVE LABEL RESTRICTIONS AND PRECAUTIONS.**

WHERE TANK MIX PARTNER LABELS REFER TO ONLY 360 G/L GLYPHOSATE PRODUCTS, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.

Smoke 540 plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn. Apply Smoke 540 in tank mix with Dual Magnum or Dual II Magnum at 1.25 to 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of Smoke 540. Use higher rates of Smoke 540 if perennial weeds are present.

Smoke 540 plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus Aatrex Liquid 480 Herbicide

For burndown and residual control of selected annual weeds in corn. Apply Smoke 540 in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.25 – 1.75 L/ha plus Aatrex Liquid 480 Herbicide at 2.1 - 3.1 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of Smoke 540. Use higher rates of Smoke 540 if perennial weeds are present.

Smoke 540 plus Primextra II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn apply Smoke 540 plus Primextra II Magnum preplant surface or pre-emergence application before crop emergence. This tank mixture requires the use of a surfactant, either Agral 90 or Ag-Surf. See mixing instructions for more information.

Perennial weeds such as quack grass may not be controlled with lower rates of Smoke 540. Use higher rates of Smoke 540 if perennial weeds are present.

Smoke 540 plus Fieldstar Herbicide

For burndown and residual control of selected annual weeds apply Smoke 540 plus Fieldstar Herbicide as a preplant surface or pre-emergence application before crop emergence.

Smoke 540 plus linuron herbicide

For burndown and residual control of selected annual weeds apply Smoke 540 plus linuron herbicide after seeding but before crop emergence.

Smoke 540 plus Converge Pro Herbicide or Converge 75 WDG Herbicide

Surface Preplant:

CONVERGE 75 WDG Herbicide can be applied to the soil surface up to 14 days prior to planting. CONVERGE 75 WDG Herbicide must be tankmixed with atrazine when applied as a surface preplant application. When weed growth is present at the time of application, Smoke 540 can be added to the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine treatment for burndown control of these weeds. Do not incorporate.

Preemergence:

Converge Pro Herbicide or Converge 75 WDG Herbicide can also be applied after planting to just prior to crop emergence. Atrazine and/or Smoke 540 can be tank mixed with pre-emergent applications of Converge Pro Herbicide or Converge 75 WDG Herbicide.

Apply Converge Pro Herbicide at 165-220 mL per hectare, or Converge 75 WDG Herbicide at 105-140 g per hectare, tankmixed with Smoke 540 at 1.67 L per hectare for burndown control of emerged weeds in all tillage management systems and improved control of established dandelion in zero-tillage management systems. A three-way tankmix of Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine + Smoke 540 can be used to provide residual control of the weeds listed in the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine section.

Smoke 540 Liquid Herbicide plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with Smoke 540. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

Smoke 540 plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems:

Apply this tank mixture in a minimum of 200 L/ha of total volume.

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Dual, Magnum and Primextra are registered trademarks of Syngenta Group Company.

Fieldstar is a trademark of Dow Agrosciences LLC.

9.2 POSTHARVEST STUBBLE TREATMENT

This product may be applied in the fall as a postharvest stubble treatment for control of perennial weeds such as quackgrass and Canada thistle. Allow weeds to regrow to the desired stage (20 to 25 centimetres tall for quackgrass and Canada thistle) before application and ensure they have a high proportion of green colouration. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frosts prior to application may decrease control.

9.3 SPOT TREATMENT (IN-CROP)

This product can be applied as an in-crop spot treatment in barley, corn, oats, soybeans, wheat, strawberry, blueberry, forage grasses and legumes including seed production. Applications should be made using the same rates and at the same growth stages as listed in the “**Weed Control**” tables (sections 7.1 and 8.1) or use a 0.67 percent solution for annual weeds and quackgrass and a 1.34 percent solution for other perennial weeds (a 0.67 percent solution equals 0.67 litres of Smoke 540 in 100 litres of spray solution). 0.67 and 1.34 percent solutions should be applied to wet, but not run-off. Applications can be made using a boom sprayer, hose and handgun, or hand sprayer in accordance with instructions in “**Application Equipment**” (section 5.2).

9.3.1 GRAZING RESTRICTIONS

Applications can be made up to heading of small grains, initial pod set on soy and dry beans, silking of corn and emergence of seed heads. The crop in the treated area will be killed. Take care to avoid drift for the same reason. **DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS FOR SMOKE 540 TO TRANSLOCATE INTO ALL PLANT PARTS BEFORE GRAZING OR HARVESTING TREATED AREAS IN FORAGES.**

9.4 SUMMERFALLOW TREATMENT

This product, or labeled tank mixtures, may be applied in summerfallow to control weeds listed on this label. Ensure weeds are at the desired growth stage and actively growing at application for best results. Reduced control may result if weeds are drought stressed. Weeds will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds.

9.5 MINIMUM AND ZERO TILLAGE CROPPING SYSTEMS (ALL FIELD CROPS, INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES, CORN AND POTATOES)

This product may be applied prior to seeding or after seeding, but before crop emergence for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Applications made too far in advance of seeding may allow weeds to emerge between application and crop emergence, as this product does not provide residual weed control.

Minimum and Zero Tillage Tank Mixtures

9.5.1 Smoke 540 plus 2,4-D amine or ester can be applied prior to seeding or after seeding, but before crop emergence in **wheat, winter wheat, barley and rye**. Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.5.2 Smoke 540 plus bromoxynil (Pardner) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley and oats. Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.5.3 Smoke 540 plus Pursuit Herbicide can be applied prior to, or after seeding, but before crop emergence in soybeans. Smoke 540 will control emerged weeds listed on this label when applied as directed (refer to “**Annual and Perennial Weed Control**” section 7.0 and 8.0). Pursuit Herbicide will control weeds germinating from seed. Add the recommended rates of both products in 100 litres of water per hectare, following the instructions on the Pursuit herbicide label.

ALWAYS REFER TO THE PURSUIT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS. ONLY SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT HERBICIDE APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 120 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE.

Pursuit is a registered trademark of BASF Agrochemical Products B.V. Netherlands.

9.5.4 Smoke 540 plus MCPA can be applied prior to seeding in wheat, barley, rye, oats, corn (field and sweet; MCPA amine only), flax and field peas (MCPA amine only). Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.5.5 Smoke 540 plus Buctril M® can be applied prior to seeding in **wheat, rye, corn, barley, oats, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow brome grass, seedling streambank wheatgrass and reed canary grass).**

Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.5.6 Smoke 540 plus MCPA amine can be applied prior to seeding in **lentil and chickpea**. Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.5.7 Smoke 540 plus Express Toss-N-Go Herbicide Or Express Toss-N-Go® Dry Flowable 75% Herbicide in pre-seed situations, **wheat and barley** may be seeded after a minimum of 24 hours after application. Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

ALWAYS REFER TO THE EXPRESS® TOSS-N-GO HERBICIDE OR EXPRESS TOSS-N-GO DRY FLOWABLE 75% HERBICIDE LABEL FOR FURTHER INFORMATION ON APPLICATION DIRECTIONS, TANK MIXING, AND USE PRECAUTIONS.

9.5.8 Smoke 540 plus Banvel II Herbicide can be applied prior to seeding in **wheat, barley, rye, oats and field corn only (do not apply prior to seeding sweet corn)**. Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.6 FORAGES LEGUMES AND GRASSES

This product may be applied for control of emerged weeds prior to emergence of forage legumes and grasses. If the forages are to be under-seeded with a cover crop, this product must be applied prior to planting the cover crop.

9.7 PASTURE RENOVATION

Use this product to control or suppress existing vegetation for zero-tillage seeding of legumes into established sod for pasture renovation. Delay spraying until weed growth is at least 20 centimetres in height and a maximum number of seedlings or shoots have emerged. Application can be made immediately before, during or after seeding, but before crop emergence.

9.8 FORAGE SEED PRODUCTION

For spot treatment control of perennial weed problems such as quackgrass and Canada thistle in seed fields, apply as directed to vegetation that is at least 20 to 25 centimetres in height but before emergence of seed head. The crop in the treated areas will be killed. Take care to avoid drift outside target areas for the same reason.

9.9 PREHARVEST TREATMENT

CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX AND DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle, Smoke 540 can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed) (including Roundup Ready® varieties), flax (including low linolenic acid varieties), lentils, peas, dry beans, soybeans (including Roundup Ready® varieties) and forages. DO NOT apply to crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations. **EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.** Preharvest treatment to Roundup Ready® varieties of canola and soybean provides weed control only.

Smoke 540 should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For forage crops, apply this product at 1.67 to 3.33 litres per hectare 3 to 7 days prior to the last cut before rotation or forage renovation.

Consult the table “**Guidelines for Timing of Preharvest Applications**” (section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results, quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 to 14 days (or 3 to 7 days for forage applications) before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

DO NOT apply using aerial application equipment.

9.9.1 GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including Roundup Ready® varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low linolenic acid varieties)	Less than 30	Majority (75% - 80%) of bolls are brown.
PEAS	Less than 30	Majority (75% - 80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80% - 90% leaf drop (original leaves).
SOYBEANS (including Roundup Ready varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80% - 90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS: (PREHARVEST TREATMENT OF CHICKPEA, DRIED LUPIN AND DRIED FAVA BEAN).

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE

Preharvest Treatment of Chickpea, Dried Lupin and Dried Fava Bean

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle and harvest management, Smoke 540 can be applied prior to harvest of chickpea, dried lupin and dried fava bean. DO NOT apply to crops if grown for seed production.

Smoke 540 should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For further information see guidelines above. The Pre-harvest interval is 7 days.

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
Chickpea	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves)
Dried Lupin		
Dried Fava Bean		

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS

9.9.2 PREHARVEST AERIAL APPLICATION

Refer to the general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific instructions in this section.

**RESTRICTED USE
AERIAL PREHARVEST APPLICATION
PRAIRIE PROVINCES ONLY
(including PEACE RIVER REGION AND
INTERIOR OF B.C.)**

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators and aerial application services approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patternation) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 – 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.

3. Applicators using this product must have successfully completed a Smoke 540 herbicide aerial application training course.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the *direct daily supervision* of a qualified pilot.

Refer to general directions and precautions concerning aerial application, section 5.2, and 5.3, buffer zones.

DIRECTIONS FOR USE

Smoke 540 may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. Smoke 540 can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, dry beans and soybeans. **Do not use on forages. DO NOT apply to any crops if grown for seed production.**

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

Smoke 540 should be applied at 1.67 L/ha in 20 – 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% of less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table “**Guidelines for Timing of Preharvest Applications**” (Section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 – 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

9.10 TREE PLANTINGS

SHELTERBELTS AND NURSERY STOCK (WOODY ORNAMENTALS)

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established nurseries or shelterbelts of the following species:

DECIDUOUS

Ash

Fraxinus spp.

Caragana

Caragana spp.

Cherry

Prunus spp.

Elm

Ulmus spp.

Lilac

Syringa spp.

Maple

Acer spp.

Mountain Ash

Sorbus spp.

Poplar

Populus spp.

Russian Olive

Elaeagnus spp.

Willow

Salix spp.

CONIFEROUS

Fir

Abies spp.

Juniper

Juniperus spp.

Pine

Pinus spp.

Spruce

Picea spp.

Yew

Taxus spp.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

9.11 TREE, VINE, BERRY AND OTHER CROPS

This product is recommended for annual and perennial weed control in established vineyards or orchards, in blueberry, cranberry and strawberry, or for site preparation prior to transplanting tree and vine crops. Applications may be made with boom equipment, shielded sprayers, hand held and high volume orchard guns, or with wiper applicator equipment (orchards, vineyards, cranberry and strawberry only). See “**Mixing and Application Equipment Information**” (section 5.2) and the following table for specific information on the use of equipment.

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual or preemergent weed control. For subsequent weed control, follow a program using residual herbicides or use repeated applications of this product. Do not apply more than 23 litres of this product per hectare per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF

HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES, OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

WEED CONTROL IN TREE, VINE, BERRY AND OTHER CROPS

CROP	RATE (L/ha)	PRE-HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Apples, Apricot, Cherry (sweet/sour), Peaches, Pears, Plums	1.5 - 8	30	3	Annual and perennial weeds	
Apples, Grapes	Tank Mix 1.5 – 8 + Simazine 2.0 – 4.5 kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long preemergent control. Do not apply to coarse, sandy or gravelly soil. When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

CROP	RATE (L/ha)	PRE- HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
					DO NOT apply to orchards or vineyards that have been established less than 1 or 3 years, respectively. Simazine rate is equivalent to 2.25 – 5.0 kg/ha Princep® Nine-T®, or 4.0 – 9.0 kg/ha Simadex®
Grapes	1.5 - 8	14	3	Annual and perennial weeds.	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. Do not apply to vines which have been established less than 3 years.
Highbush (cultivated) blueberry	1.87 – 3.73	30	1	Quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	0.67 – 1.34% solution (spot application)	Apply in non-bearing year only	1	Woody brush (section 6.3)	Apply as a directed spray in mid-summer of the vegetative (non-bearing) year. See section 9.3 for instructions on spot treatments.
Filberts, Hazelnut (established plantations)	1.5 – 2.33	14	-	Annual Weeds	Use as a directed spray, with no more than 275 kPa pressure.

CROP	RATE (L/ha)	PRE-HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Walnut, Chestnut, Japanese Heartnut	1.5 - 8	-	2	Annual and perennial weeds	Apply late spring and fall, postharvest but prior to a killing frost. Apply in 200 – 300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 1.34% wiper solution (see “ Wiper Applications ” section 9.12).
Cranberry	13.4% solution (0.62 L Smoke 540 + 4L water)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators (section 9.12).
Strawberry	0.67 – 1.34% solution (spot application) 22% solution (wiper application)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage (see sections 8.1 and 8.2). See section 9.3 for instructions on spot treatments. See section 9.12 for instructions on wiper applications.
Asparagus	0.83 – 1.67	7	1	Fall seeded ryegrass	Apply in spring before emergence of crop shoots.

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Simadex is a registered trademark of Aventis CropScience UK Limited.

SHORT ROTATION INTENSIVE CULTURE (SRIC) POPLAR

(Populus spp)

DO NOT apply using aerial application equipment.

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established crops of short rotation intensive culture (SRIC) Poplar species (*Populus spp.*)

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, OR OTHER PARTS OF TREES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

Smoke 540 may be applied prior to planting or as a post directed spray in established short rotation intensive culture crops. Apply Smoke 540 up to 8 L/ha in 50 – 100 liters or 150 – 300 L/h for quackgrass control by ground application only. Applications can be made 1-3 times per year during establishment however, not to exceed the limit of 8 L/ha per year. Shielded sprayers must be utilized when applying post directed spray solutions. Allow a 6-8 week interval between spray applications. Apply to actively growing weeds.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS: (NORTH AMERICAN GINSENG).

The DIRECTIONS FOR USE for the uses described this section on the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS.

NORTH AMERICAN GINSENG

New Gardens (British Columbia only): Apply this product in the fall after seeding but before freeze-up in new gardens only to control volunteer cereals. Apply when weeds are at the growth stages listed on the product label. Use a single application of 1.67 litres per hectare in 50 to 100 litres water per hectare. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS**

Existing/Established Gardens: Apply this product in the spring before the crop has emerged above the soil. Apply when weeds are at the growth stages described in the product label. A maximum of two 1.67 litres per hectare applications in 50 to 100 litres water per hectare may be made in a season. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDEN**

9.12 SELECTIVE EQUIPMENT

WIPER APPLICATORS

This product may be applied with a wiper applicator, after dilution and thorough mixing with water, to listed weeds in soy and dry beans, grapes, orchards, cranberries, lowbush blueberries and strawberries. Applications must be made before initial pod set in soy and dry beans. (It may also be used in any industrial, tree planting and non-crop site specified on this label. See sections 9.10 and 10.1).

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution. Wiper applicators include either roller or wick devices which physically wipe appropriate concentrations or amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Performance may be improved by reducing speed in areas of heavy weed infestations to insure adequate wiper saturation. Best results may be obtained if 2 applications are made in opposite directions.

AVOID CONTACT WITH DESIRABLE VEGETATION. Contact of the herbicide solution with desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that wiper contact point is at least 5 centimetres above the desirable vegetation. Droplets or foam of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications should be made when the weeds are a minimum of 15 centimetres above the desirable vegetation. Best results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. See the “**Weed Control**” tables (sections 7.1 and 8.1) for recommended stage of growth for specific weeds.

NOTES

- **Maintain equipment in good operating condition. Avoid leakage or dripping onto desirable vegetation.**
- **Adjust height of applicator to insure proper contact with weeds.**
- **Keep wiping surfaces clean.**
- **Maintain recommended roller RPM on roller applicators while in use.**
- **Keep wiper material at proper degree of saturation with herbicide solution.**
- **DO NOT use wiper equipment when weeds are wet.**

- **DO NOT operate equipment at ground speeds below 4 and greater than 10 kilometres per hour. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to insure good coverage of weeds.**
- **Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.**
- **Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended herbicide solution directly to the weed.**
- **Care must be taken with all types of wipers to insure that the absorbent material does not become over-saturated, causing the herbicide to drip onto desirable vegetation.**
- **With all equipment, drain and clean wiper parts immediately after using this product, by thoroughly flushing with water.**

For Roller Applicators – Mix 0.33 to 0.67 litres of this product in 10 litres water to prepare a 3 to 7 percent solution. Roller speed should be maintained at 50 to 150 RPM.

For Wick or other Wiper Applicators – Mix 0.57 litres of this product in 2 litres of water to prepare a 22 percent solution.

10.0 NON-CROPLAND USES

INDUSTRIAL, RIGHTS-OF-WAY, RECREATIONAL, AND PUBLIC AREAS.

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

DO NOT apply using aerial application equipment.

This product can be used to control annual and perennial weeds and woody brush and trees listed on this label in non-crop areas such as railroad, pipeline, highway, power and telephone rights-of-way, petroleum tank farms and pumping installations; roadsides; storage areas; lumberyards; fence rows; industrial plant sites; parking areas; school yards, parks, golf courses, other public areas; airports and similar industrial or non-crop areas.

NOTE: For all industrial, rights-of-way, recreational and public areas, repeat treatments may be necessary to control regeneration or new growth.

When applied as recommended under the conditions described, this product will control weeds in non-cropland areas as listed in the following table.

10.1 WEED CONTROL IN NON-CROPLAND AREAS WITH SMOKE 540

WEEDS	GROUND APPLICATION*			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
Annual grasses and broadleaves	1.5–2.33	50-100	0.67	Actively growing weeds.
Perennial Weeds				Actively growing weeds.
Quackgrass	1.67 3.17-4.67	50-300 50-300	0.67 1.34	Add 0.5% v/v of a recommended surfactant when using water volumes greater than 150 L (see section 8.2.2).
Canada Thistle (bud stage)	3.17-4.67	100-300	1.34	
Purple Loosestrife	4	300-600	0.67-1.34 (or 22% for wiper application)	
Other Perennials	4.67-8	100-300	1.34	Higher rate for long term control and for heavy infestations.
				See section 10.2.2 for instructions on purple loosestrife applications.
				Summer through fall is optimum.
Brush and Trees				
Birch, Cherry, Poplar, Western Snowberry, Willow	2-4	100-300	0.67-1.34	Summer through early fall (see section 10.2).
Maple, Raspberry/ Salmonberry, Alder	4	100-300	1.34	Late summer through fall. Fall is optimum.

WEEDS	GROUND APPLICATION*			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
Turf Renovation Annual and perennial weeds	1.67-8	100-300	0.67-1.34	Use higher end of the rate range for perennials.
Roadside Vegetation (1-2m wide along shoulders) Annual weeds (refer to tank mix sections on product labels for specific weeds controlled)	1) 0.5 – 0.67 + 1.25 – 2.5 L Vanquish or 2) 0.5 – 0.67 + 0.30 L Vanquish + 1.2 L 2,4-D amine 500	25-150	-	Refer to “ Annual Weed Control ” table (section 7.1) for appropriate product rate for specific weeds. For 2,4-D amine formulations with a different guarantee, adjust the rate accordingly. No application to standing water.
Residual Control Annual and perennial weeds (the simazine component of this tank mixture will provide season long control of most germinating broadleaf weeds and grasses. It may also provide postemergent activity on certain annual weeds).	1.67 – 8 + 4.0 -9.0 L Simadex Simazine Flowable	200-400	-	Do not apply to coarse, sandy or gravelly soil. One application per year. Use according to the most restrictive label directions for each product in the mixture. For other simazine formulations registered for industrial/ non-cropland areas, use equivalent rates; i.e., 2.0 – 4.5 kg simazine/ha.

* For more information on rates, water volumes and application, refer to “**Annual and Perennial Weed Control**” (sections 7.1 and 8.1, respectively).

Vanquish is a registered trademark of Syngenta Group Company.
Simadex is a registered trademark of Bayer.

10.2 APPLICATION INFORMATION FOR NON-CROPLAND USES

FOLIAR APPLICATIONS

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30 to 45 days for symptoms to develop on target species. Late season application may be made to species that have some autumn colors provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURF GRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

This product does not provide residual weed control. For subsequent weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

10.2.1 GROUND APPLICATIONS:

For all non-cropland uses

For woody brush and trees, apply 2 to 4 litres of this product per hectare. Use ground boom or boomless, or mist blower equipment, or apply as a 0.67 to 1.34 percent solution using hand held, high volume equipment. Apply as directed in the recommended volume of clean water to foliage of actively growing vegetation. Use the 4 litres per hectare rate for Maple, Alder and Willow* species, as well as for hard to control perennial weed species. (*suppression only).

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages.

10.2.2 PURPLE LOOSESTRIFE CONTROL

- **DO NOT TREAT PLANTS OVER OPEN WATER.** Smoke 540 is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using hand held equipment, spray-to-wet.
- For wiper applications see section 9.12.

- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

10.3 SELECTIVE APPLICATION FOR ALL NON-CROPLAND USES

Selective equipment such as WIPER and ROLLER applicators can be used to control emerged weeds in non-crop areas and tree plantings. See “**Selective Equipment**” (section 9.12) for more information.

10.4 TURF GRASS

When applied as directed, under conditions described, this product controls most existing vegetation. Apply this product at rates specified in “**Weed Control in Non-Cropland Areas**” (section 10.1).

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth given in “**Weed Control**” (sections 7.1 and 8.1, respectively). Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray and proper translocation into underground plant parts. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

For maximum control of existing vegetation, delay establishment to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. Desirable turfgrass may be established following the above procedures.

10.5 INJECTION APPLICATIONS -- FOR ALL NON-CROPLAND USES

Woody vegetation may be controlled by injection application of this product. Apply using suitable equipment, which must penetrate into living tissue, at a rate of at least 0.33 millilitres (either undiluted or 1:1 with water) per 5 centimetres tree diameter at breast height (DBH). The cuts should be spaced evenly around the tree and below all major branches. Application may be made at any time of year, except when cold temperatures prevent adequate penetration of injection equipment, or in the spring during periods of heavy sap flow. Control of tree species with tree diameters greater than 20 centimetres may not be acceptable at this rate.

Total control may not be evident for 1 to 2 years following treatment. A partial list of species controlled includes:

Alder

Alnus spp.

Birch

Betula spp.

Cedar

Thuja spp.

Cherry

Prunus spp.

Douglas Fir

Pseudotsuga spp.

Hemlock

Tsuga spp.

Maple*

Acer spp.

Pine

Pinus spp.

Poplar

Populus spp.

Willow

Salix spp.

* This treatment may only provide suppression of Bigleaf Maple. Late fall applications will provide optimum suppression of Bigleaf Maple.

10.6 CUT STUMP APPLICATION

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Because the treatment uses a concentrated solution, application must be made using low-pressure equipment e.g., squirt bottle or similar device. This product must be applied immediately to the surface of the freshly cut stump i.e., within 5 minutes for optimum control at the prescribed rates. Only the cambial tissues of the cut surface should be treated. Apply the herbicide solution at a rate equivalent to at least 0.33 milliliters product for every 5 centimeters DBH. Do not cover the remaining area nor any exposed roots, as this product does not penetrate bark well. This treatment may be used at any time of year, except during periods of heavy sap flow or when low temperatures prevent solution application due to freezing. A water soluble colourant may be added to the solution as a means of indicating which surfaces have been treated. Total control may not be evident until 1 to 2 years after treatment.

See “**Injection Applications**” (section 10.5) of this label for a partial list of species controlled.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33762
Product Name :	FBN CLOPYRALID 360 SL
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2020-05-07
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2025-12-31
Marketing Type :	COMMERCIAL
Active Ingredient(s):	CLOPYRALID PRESENT AS ACID, OR AS SALTS 3,6-dichloropyridine-2-carboxylic acid or 3,6-dichloropicolinic acid CASN = 1702-17-6 (GUAR = 360 g/l NOMINAL)

Date Modified: 2020-08-31

(Container)

FBN Clopyralid 360 SL Herbicide

GROUP	4	HERBICIDE
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For control of perennial and annual broadleaved weeds in field crops, Christmas tree plantations, pasture, rangeland, vegetable and fruit crops, and non-cropland.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: clopyralid 360 g/L (present as the monoethanolamine salt)

Liquid

REGISTRATION NO. 33762 PEST CONTROL PRODUCTS ACT



POISON

DANGER - EYE AND SKIN IRRITANT

NET CONTENTS: 1 – 1000 L

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

Product Information: 1-844-200-FARM (3276)

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

May be harmful if absorbed through the skin

MAY CAUSE SKIN IRRITATION

COMBUSTIBLE

Severely irritating to the eye. DO NOT get in eyes.

Avoid contact with skin and clothing.

Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, cleanup and repair. Goggles or a face shield are required during mixing and loading. Gloves are not required to be worn during groundboom applications but are required for mixing/loading, clean-up and repair.

For agricultural crops, do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. For non-crop areas, DO NOT enter or allow worker entry into treated areas until sprays have dried.

AT COMPLETION OF SPRAYING OR END OF THE DAY: Take a shower immediately. Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store this product away from food or feed. Store in heated storage; if product is frozen, bring to room temperature and agitate before use.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in any way that is inconsistent with the directions on the label.

(Booklet)

FBN Clopyralid 360 SL Herbicide

GROUP	4	HERBICIDE
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For control of perennial and annual broadleaved weeds in field crops, Christmas tree plantations, pasture, rangeland, vegetable and fruit crops, and non-cropland.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: clopyralid: 360 g/L (present as the monoethanolamine salt)

Liquid

REGISTRATION NO. 33762 PEST CONTROL PRODUCTS ACT



POISON

DANGER - EYE AND SKIN IRRITANT

NET CONTENTS: 1- 1000 L

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

Product Information: 1-844-200-FARM (3276)

PRECAUTIONS
KEEP OUT OF REACH OF CHILDREN
May be harmful if absorbed through the skin
MAY CAUSE SKIN IRRITATION

COMBUSTIBLE

Severely irritating to the eye. DO NOT get in eyes.

Avoid contact with skin and clothing.

Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, cleanup and repair. Goggles or a face shield are required during mixing and loading. Gloves are not required to be worn during groundboom applications but are required for mixing/loading, clean-up and repair.

For agricultural crops, do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. For non-crop areas, DO NOT enter or allow worker entry into treated areas until sprays have dried.

AT COMPLETION OF SPRAYING OR END OF THE DAY: Take a shower immediately. Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (for example, soils that are compacted or fine textured such as clay).

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store this product away from food or feed. Store in heated storage; if product is frozen, bring to room temperature and agitate before use.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

FBN Clopyralid 360 SL Herbicide is a liquid concentrate intended for dilution with water and for use on canola, sugar beets, rutabagas, summerfallow, flax (including low linolenic acid varieties), wheat (spring), barley (spring), oats, strawberry, seedling and established grasses grown for forage and seed production, non-crop farmland, balsam fir Christmas trees and highbush blueberry. It is readily absorbed by both foliage and roots and translocates both upwards and downwards in plants. The product controls Canada thistle, wild buckwheat, scentless chamomile, common groundsel and volunteer alfalfa. It suppresses growth of perennial sow-thistle through control of top growth.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

VEGETATION AND CROP PRECAUTIONS

Do not use in greenhouses.

Sensitive Plants

Do not apply FBN Clopyralid 360 SL Herbicide directly to, or otherwise permit it to come into contact with sunflowers, legumes (such as peas, beans, lentils or alfalfa), fruit or vegetable crops, flowers or other desirable broadleaved plants. Take precautions to prevent spray mists containing it to drift onto them. Residues of FBN Clopyralid 360 SL Herbicide can remain in the soil following the year of use, thereby affecting growth of sensitive crops.

Special precautions should be taken during application to non cropland areas such as roadsides, pipelines and railways where sensitive desirable vegetation may be present. Do not apply to or allow drift to come into contact with sensitive desirable vegetation such as vetch or clover which may be found on embankments.

Non-Target Sites

Avoid contamination of non-target land, water or irrigation ditches. Do not use FBN Clopyralid 360 SL Herbicide in the following areas: standing or flowing water; the inner banks or bottoms of irrigation ditches; in areas where surface water can run off to adjacent croplands either planted or to be planted to sensitive crops.

Crop Rotation

Fields previously treated with FBN Clopyralid 360 SL Herbicide can be seeded the following year to wheat, oats, barley, rye (not underseeded with legumes, clover or alfalfa), forage grasses, flax, canola, mustard or it can be summerfallowed.

Do not seed to crops other than those listed above in the calendar year following treatment.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) for information before mixing any pesticide or fertilizer that is not specifically recommended on this label.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Grazing and Harvesting for Feed

There are no restrictions on the grazing of crops or forages treated with FBN Clopyralid 360 SL Herbicide. If necessary, treated areas may be grazed immediately following application.

Manure and Straw

Residues of the herbicide occurring in the straw may be harmful to susceptible plants; therefore, do not use straw or crop residue from treated crops for composting or mulching susceptible broadleaved crops. If the straw or crop residue is used for animal bedding or feed, return the manure to fields to be planted to clopyralid tolerant crops such as wheat, barley, oats, rye, forage grasses, canola or flax. Do not grow susceptible crops such as peas, beans, lentils, potatoes, sunflowers or other sensitive crops on land which has been mulched with straw containing FBN Clopyralid 360 SL Herbicide residues within the last 12 months.

SPRAY EQUIPMENT AND CONTAINER PRECAUTIONS

Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings. For ground sprayer applications:

Spot treatments using hand-held equipment do not require a buffer zone. Use of low-clearance hooded or shielded sprayers that prevent spray contact with crop, fruit or foliage.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) fine/medium/coarse classification. Boom height must be 60 cm or less above the crop or ground. DO NOT apply using aerial application equipment.

To Reduce Spray Drift

Use nozzles that deliver higher volumes and coarser droplets.

- Use low pressures (200 to 275 kPa).
- Use 100 to 200 L/ha of spray solution.
- Spray when the wind velocity is 15 km/hr or less.

Equipment Clean-Up

Equipment used to apply FBN Clopyralid 360 SL Herbicide should not be used to apply other pesticides to sensitive crops without thorough cleaning. Contact your FBN Clopyralid 360 SL Herbicide dealer for a detailed equipment cleaning procedure.

APPLICATION DIRECTIONS

Spray Preparation

To prepare the spray solution add about half the desired amount of water to the spray tank, then with mechanical or bypass agitation, add the recommended amount of FBN Clopyralid 360 SL Herbicide. Mix thoroughly in the tank. Second, add the recommended tank-mix herbicide. Finally with continued agitation, add the rest of the water.

Spray Application Volume

Apply FBN Clopyralid 360 SL Herbicide at 0.28 to 0.83 L/ha plus any other herbicide approved as a tank-mix at the recommended rate in sufficient water to ensure thorough coverage (100 to 200 L/ha of spray solution) by ground equipment only at pressures of 200 to 275 kPa. Treat when weeds are young and actively growing, when the Canada thistle is in the rosette to pre-bud stage and before the purple bud stage and volunteer alfalfa is 5-50 cm in height.

For spot spraying of weed patches, mix the required volume of FBN Clopyralid 360 SL Herbicide in 200 L of water and apply to 1000 m² of weeds. Refer to the following table for the correct amount of FBN Clopyralid 360 SL Herbicide to use:

Recommended Rate of FBN Clopyralid 360 SL Herbicide Required Per Hectare	Volume of FBN Clopyralid 360 SL Herbicide Required To Treat 1000 m²
0.28 L	28 mL
0.42 L	42 mL
0.56 L	56 mL
0.83 L	83 mL

Approximate Conversions:

- 200 to 275 kPa = 30 to 40 PSI
- 100 to 200 L/ha = 10 to 20 gallons/acre
- 1 sq. metre = 1.2 sq. yards
- 1 L/ha = 14 fl. oz./acre

DIRECTIONS FOR USE – FBN Clopyralid 360 SL Herbicide Applied Alone CROPLAND AND NON-CROP

FARMLAND AREAS

Weeds Controlled	Rate*
Canada thistle (top growth) vetch (<i>Vicia</i> spp.) alsike clover	0.42 L/ha
Canada thistle scentless chamomile wild buckwheat perennial sow-thistle (top growth) common groundsel volunteer alfalfa common ragweed sheep sorrel (suppression) ox-eye daisy (suppression) kudzu (for short term suppression of top growth)	0.56 L/ha
Canada thistle (season-long control of top growth with a reduction in population in the following year) kudzu (for up to season long suppression of top growth)	0.83 L/ha

* Refer to individual crop sections below for appropriate use rate.

Weed Stages at Application

Applications of FBN Clopyralid 360 SL Herbicide should be made when Canada thistle, perennial sow-thistle and scentless chamomile are in the rosette to pre-bud stage of growth. Best results are obtained when Canada thistle is actively growing and soil moisture is adequate for rapid growth. Under dry soil conditions and poor growing conditions, control of Canada thistle may be severely reduced. Applications of FBN Clopyralid 360 SL Herbicide made after the Canada thistle flower has reached the purple bud stage will not provide satisfactory control.

Control of Canada Thistle

For in crop control of top growth of Canada thistle apply FBN Clopyralid 360 SL Herbicide at the rate of 0.42 L/ha. This will suppress top growth of Canada thistle for 6 to 8 weeks. Some regrowth may occur by the end of the season but this will not interfere with the harvesting of the crop.

For season long control of top growth of Canada thistle apply FBN Clopyralid 360 SL Herbicide at the rate of 0.56 L/ha. This rate will generally provide season long control of Canada thistle. Not all rhizomes will be killed and some regrowth may occur by the end of the growing season.

For season long control of top growth, with a reduction of Canada thistle population in the following year, apply FBN Clopyralid 360 SL Herbicide at the rate of 0.83 L/ha. This rate will provide season long control of Canada thistle and suppression into the following season, resulting in a reduction of the total number of Canada thistle shoots in the treated area.

Kudzu

In farmland non-crop areas, e.g., storage areas, farm buildings, fence rows, repeat annual applications in a minimum spray volume of 200 L/ha are required to suppress this vine due to regrowth from tubers and crowns and new growth from dormant seed in response to soil disturbance. Repeat annual applications in a minimum of 100 L water/ha may be required in cultivated fields, including summerfallow, where kudzu seed is known to be present. Application may be made by means of a backpack or hand held sprayer for small infestations.

CANOLA (Western Canada Only)

For use on Polish and Argentine varieties, including canola. FBN Clopyralid 360 SL Herbicide should be diluted with water and applied at the 2 to 6 leaf stage of the crop to effectively control Canada thistle, scentless chamomile, common groundsel, wild buckwheat, the top growth of perennial sow-thistle and volunteer alfalfa. For specific directions for control of Canada thistle only refer to the section: Control of Canada thistle.

Tank-mix Combinations in Canola

REFER TO THE PRODUCT LABELS OF THESE HERBICIDES FOR A LIST OF OTHER WEEDS CONTROLLED, RATES (IF NOT LISTED IN THE TABLE BELOW) AND TIMINGS OF APPLICATION, WATER VOLUMES AND USE PRECAUTIONS.

Herbicide Tank-Mix Partner	Rate FBN Clopyralid 360 SL	Rate Tank-Mix Partner	Additional Weeds Controlled
Poast Ultra	0.42 - 0.83 L/ha	0.32 - 0.47 L/ha plus Merge Adjuvant 0.75-1.0L/ha	annual grass weeds, Canada thistle
Venture L Herbicide	0.42 – 0.83 L/ha	0.6 - 2.0 L/ha	Venture L Herbicide
Select	0.42 - 0.83 L/ha	0.19 L/ha plus Amigo at 0.5% v/v	Canada thistle***, wild buckwheat****, wild oats, green foxtail, volunteer barley, volunteer wheat, and volunteer oats
Odyssey WDG*	0.42 - 0.56 L/ha	29 - 43 g/ha	Canada thistle (FBN Clopyralid 360 SL at 0.42 L/ha will provide top growth control of Canada thistle for 6-8 weeks, while the 0.56 L/ha rate will provide season long control of top growth)
VP480 Herbicide ** Roundup Transorb HC Liquid ** Roundup WeatherMAX With Transorb 2 Technology**	0.28 L/ha	0.94 L/ha 0.83 L/ha 0.83 L/ha	For rates and timing of application for annual grass and broadleaf weeds please see tank-mix partner label. Weeds controlled season long: Canada thistle (season-long top growth), dandelions <15 cm diameter (season-long top growth), dandelions >15 cm diameter (suppression), perennial sowthistle (season-long top growth), perennial sowthistle (season-long top growth), wild buck wheat

* Clearfield canola varieties only – apply to Clearfield canola when in the 2 to 6 leaf stage and Canada thistle is actively growing.

** Glyphosate-tolerant canola varieties only – apply to canola when in the 2 to 6 leaf stage. Use 100 L/ha water.

***Canada thistle – 0.42 L FBN Clopyralid 360 SL/ha top growth control to 6-8 weeks, 0.56 L FBN Clopyralid 360 SL/ha season- long control, 0.83 L FBN Clopyralid 360 SL/ha control into following year

****Wild buckwheat – 0.56 L FBN Clopyralid 360 SL/ha for season-long control

Tank-Mix Instructions

Note 1: When tank mixing water soluble formulations such as FBN Clopyralid 360 SL Herbicide with emulsifiable concentrates such as Poast Ultra, and Select herbicides, first add the FBN Clopyralid 360 SL Herbicide to the spray tank. Once it is half filled with water, add the emulsifiable concentrate as the remaining water is put into the spray tank.

Note 2: If the sprayer has been previously used to apply herbicides which contain 2,4-D or MCPA herbicides, it is imperative that the spray equipment be thoroughly cleaned before FBN Clopyralid 360 SL Herbicide is mixed in the spray tank. Trace contamination of the spray solution with these herbicides will result in damage to the canola.

Note 3: Use 100 L/Ha of water. Use a 50 mesh (or coarser) filter screen. Fill the spray tank three-quarters full with water. Add the required amount of Odyssey WDG herbicide soluble bag(s) directly into the sprayer through the tank opening. Agitate for at least ten minutes to dissolve the herbicide. After the herbicide is dissolved, use a separate calibrated measuring device to add the required amount of FBN Clopyralid 360 SL Herbicide while agitating the spray solution. After the FBN Clopyralid 360 SL Herbicide is dissolved, continue agitation and add the required amount of Merge adjuvant or non-ionic surfactant plus fertilizer. If excess foaming occurs, a silicone anti-foaming agent may be added (e.g. Halt). Complete filling the tank to the desired level with water. If agitation is stopped for more than 5 minutes, re-suspend spray solution by full agitation prior to commencing spraying again. Between loads of Odyssey WDG herbicide, check in-line and nozzle screens and rinse and clean if necessary. Upon completion of spraying Odyssey WDG herbicide, thoroughly flush tank, boom, hoses and in-line and nozzle screens with clean water to avoid possible injury to other crops.

FLAX, Including Low Linolenic Acid Varieties (Western Canada Only)

For use in flax, FBN Clopyralid 360 SL Herbicide should be applied when the flax is 5 to 10 cm high and the weeds are actively growing. Use FBN Clopyralid 360 SL Herbicide at 0.56 to 0.83 L/ha to control Canada thistle, common groundsel, scentless chamomile, wild buckwheat, perennial sow-thistle (top growth) and volunteer alfalfa.

The 0.83 L/ha rate will extend control of Canada thistle into the following year.

Tank-Mix Combinations in Flax

REFER TO THE PRODUCT LABELS OF THESE HERBICIDES FOR A LIST OF OTHER WEEDS CONTROLLED, RATES (IF NOT LISTED IN THE TABLE BELOW) AND TIMINGS OF APPLICATION, WATER VOLUMES AND USE PRECAUTIONS.

Herbicide Tank-Mix Partner	Rate FBN Clopyralid 360 SL	Rate Tank-Mix Partner	Additional Weeds Controlled
MCPA Ester or MCPA Amine MCPA Amine (500 g ae/L) MCPA Ester (500 g ae/L) MCPA Ester (600 g ae/L)	0.42 L/ha	420 - 560 g ae/ha 0.84 - 1.12 L/ha 0.7 - 0.93 L/ha	Canada thistle (top growth control) shepherd's-purse, common groundsel common ragweed, cocklebur, dandelion, stinkweed, lamb's-quarters tartary buckwheat, scentless chamomile, wild buckwheat, wild mustard, volunteer canola, redroot pigweed*, perennial sow-thistle (top growth), volunteer alfalfa
Poast Ultra	0.42 - 0.83 L/ha	0.32 - 0.47 L/ha plus Merge Adjuvant 0.75-1.0 L/ha	annual grass weeds, Canada thistle
Poast Ultra plus MCPA Ester	0.42 - 0.83 L/ha	0.32 - 0.47 L/ha plus Merge Adjuvant 0.75-1.0 L/ha plus 420 - 560 g ai/ha	broadleaved, annual grasses, and certain perennial broadleaved weeds
Select	0.56 - 0.83 L/ha	0.19 L/ha + Amigo Adjuvant at 0.5% v/v	Canada thistle, wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer oats, and wild buckwheat
Select plus MCPA Ester	0.21 - 0.28 L/ha	0.19 L/ha plus Amigo Adjuvant at 0.5 v/v plus 420 - 560 g a.e./ha	Low rate: 0.21 L/ha FBN Clopyralid 360 SL + 420 g a.e./ha MCPA Ester – Canada thistle (low infestation), wild oats, green foxtail, volunteer cereals (wheat, barley, oats). High rate: 0.28 L/ha FBN Clopyralid 360 SL + 560 g a.e./ha MCPA Ester – Canada thistle (medium to high infestation), wild oats, green foxtail, red root pigweed, smartweed, sow-thistle (annual and perennial) (top growth), volunteer cereals (wheat, barley, oats), volunteer canola, and wild buckwheat

* Refer to MCPA herbicide label for rates and control rating.

**Canada thistle – 0.56 L FBN Clopyralid 360 SL/ha for season-long control, 0.83 L FBN Clopyralid 360 SL/ha control extended into following year.

Tank-Mix Instructions

Note 1: Rates of MCPA ester herbicide of 420 g active ingredient/ha or higher, or MCPA amine herbicide of 490 g active ingredient/ha or higher may cause some delay in maturity with resulting yield reduction.

Note 2: Where contact herbicides such as bromoxynil herbicide are used (which damage the leaves of the Canada thistle) FBN Clopyralid 360 SL Herbicide should be applied 7 to 14 days prior or after an interval of 14 days. This allows the Canada thistle to recover and resume growth.

Note 3: Add the correct amount of FBN Clopyralid 360 SL Herbicide to spray tank half filled with water and agitate. Add the correct amount of Poast Ultra herbicide and continue to agitate. Add the correct amount of Merge adjuvant along with the remaining amount of water necessary to fill the spray tank. Continue agitation.

Note 4: Add the correct amount of FBN Clopyralid 360 SL Herbicide, then MCPA herbicide to half filled sprayer and agitate for 2 to 3 minutes. Next, add Poast Ultra herbicide, and follow with the addition of Merge adjuvant with the remaining water to the required spray volume. Continuously agitate at all times.

OATS (Western Canada Only), WHEAT (SPRING) AND BARLEY (SPRING)

FBN Clopyralid 360 SL Herbicide may be used on wheat (spring), barley (spring) and oats to control Canada thistle, common groundsel, perennial sow-thistle (top growth control), wild buckwheat, scentless chamomile and volunteer alfalfa. FBN Clopyralid 360 SL Herbicide should be applied when the wheat, barley or oats are between the 3 leaf to flag leaf emergence stages of growth and weeds are actively growing. Since FBN Clopyralid 360 SL Herbicide damages legumes such as clover and alfalfa, these should not be undersown into the cereals. See Grazing and Harvesting for Feed Section of label for grazing/harvesting intervals for immature crops.

Rates of Use

FBN Clopyralid 360 SL Herbicide may be used alone in cereals for Canada thistle control.

Use 0.42 L/ha of FBN Clopyralid 360 SL Herbicide for the control of top growth of Canada thistle. This rate will suppress top growth of Canada thistle for 6 to 8 weeks. Some regrowth may occur by the end of the season but will not interfere with the harvesting of the crop.

Use 0.56 L/ha of FBN Clopyralid 360 SL Herbicide for season long control of Canada thistle.

Tank-Mix Combinations Oats (Western Canada Only), Spring Wheat and Barley

REFER TO THE PRODUCT LABELS OF THESE HERBICIDES FOR A LIST OF OTHER WEEDS CONTROLLED, RATES (IF NOT LISTED IN THE TABLE BELOW) AND TIMINGS OF APPLICATION, WATER VOLUMES AND USE PRECAUTIONS.

The following tank mixtures will control both annual and perennial broadleaved weeds listed on the tank-mix partner labels and in addition the weeds named in the Comments column below.

Herbicide Tank-Mix Partner	Crops Registered	FBN Clopyralid 360 SL	Tank-Mix Partner	Additional Weeds Controlled
2,4-D Ester or 2,4-D Amine	spring wheat durum wheat spring barley	0.28 - 0.42 L/ha	420 - 560 g a.e./ha	Canada thistle (FBN Clopyralid 360 SL at 0.28 L/ha will control Canada thistle for 6 to 8 weeks and at 0.42 L/ha rate will provide season long control) DO NOT USE ON OATS
2,4-D Amine (470 g ae/L)			0.9 - 1.2 L/ha	
2,4-D Amine (564 g ae/L) 2,4-D Ester (564 g a.e./L)			0.75 - 1.0 L/ha	
2,4-D Ester (660 g ae/L)			0.64 – 0.85 L/ha	

MCPA Ester or MCPA Amine MCPA Amine (500 g ae/L) MCPA Ester (500 g ae/L) MCPA Ester (600 g ae/L)	spring wheat durum wheat spring barley oats	0.28 - 0.42 L/ha	420 - 560 g ae/ha 0.84 - 1.12 L/ha 0.7 – 0.93 L/ha	Canada thistle (FBN Clopyralid 360 SL at 0.28 L/ha will control Canada thistle for 6 to 8 weeks and at 0.42 L/ha rate will provide season long control)
MCPA Ester plus Achieve Liquid	spring wheat durum wheat spring barley	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 0.5 L/ha plus Turbocharge 0.5% v/v	green foxtail, yellow foxtail, barnyard grass, Persian dandel, wild oats DO NOT USE ON OATS
MCPA Ester plus Assert 300 SC	spring wheat durum wheat spring barley	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 1.3 - 1.6 L/ha	wild oats: use 1.3 L/ha of Assert 300 SC on 1-3 leaf wild oats and 1.6 L/ha of Assert 300 SC on 4 leaf wild oats. DO NOT USE ON OATS
MCPA Ester plus Axial 100 EC	spring wheat spring barley	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 600 mL/ha plus Adigor 700 mL/ha	wild oats, green foxtail, yellow foxtail, volunteer oats, volunteer canary seed, proso millet DO NOT USE ON OATS
MCPA Ester plus Everest Solupak 70DF	spring wheat	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 43 g/ha	green foxtail, wild oats DO NOT USE ON OATS
MCPA Ester plus Horizon 240 EC	spring wheat durum wheat	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 230 - 290 mL/ha + Score Adjuvant 0.8 - 1.0% v/v	wild oats, green & yellow foxtail, volunteer (tame) oats, barnyard grass, volunteer canary seed at 230 mL/ha Horizon 240 EC plus 0.8% v/v Score Adjuvant above weeds plus Persian dandel at 290 mL/ha Horizon 240 EC plus 1.0% v/v Score Adjuvant DO NOT USE ON OATS
MCPA Ester plus Puma 120 Super	spring wheat durum wheat spring barley	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 385 - 770 mL/ha	green foxtail at 385 mL/ha of Puma 120 Super green foxtail, wild oats, barnyard grass at 770 mL/ha of Puma 120 Super DO NOT USE ON OATS

Florasulam SC plus MCPA Ester	spring wheat durum wheat spring barley oats	0.21 L/ha	0.1 L/ha plus 420 g ae/ha	Canada thistle, volunteer canola*, common chickweed, cleavers, dandelions (seedlings; over-wintered rosettes <15 cm), flixweed (spring rosettes only), hempnettle, lamb's quarters, pigweed, redroot, shepherd's purse, smartweed, perennial sowthistle (top growth only)**, annual sowthistle, stinkweed, stork's-bill, wild buckwheat, and wild mustard, and suppression of dandelion (over-wintered rosettes >15 cm; mature plants) * Including Roundup Ready, Liberty-Link and Smart herbicide-tolerant canola varieties ** Control not observed until a minimum of 40 days after treatment
Florasulam SC plus MCPA Ester plus Assert 300 SC	spring wheat durum wheat spring barley	0.21 L/ha	0.1 L/ha plus 420 g ae/ha +/- 1.6 L/ha	wild oats Use 1.3 L/ha of Assert 300 SC on 1-3 leaf wild oats and 1.6 L/ha of Assert 300 SC on 4 leaf wild oats DO NOT USE ON OATS
Florasulam SC plus MCPA Ester plus Everest Solupak 70DF	spring wheat durum wheat	0.21 L/ha	0.1 L/ha plus 420 g ae/ha plus 43 g/ha plus Agral 90 or AgSurf 0.25% v/v	green foxtail, wild oats DO NOT USE ON OATS
Florasulam SC plus MCPA Ester plus Axial 100 EC	spring wheat spring barley	0.21 L/ha	0.1 L/ha plus 420 g ae/ha plus 600 mL/ha plus Adigor 700 mL/ha	wild oats, green foxtail*, yellow foxtail, volunteer oats, volunteer canary seed, proso millet, and barnyard grass** * Suppression only of green foxtail. ** A reduction in barnyard grass control may be observed with this tank-mix combination. DO NOT USE ON OATS

<p>Starane™ II plus MCPA Ester</p>	<p>spring wheat durum wheat spring barley</p>	<p>0.21 L/ha or 0.28 L/ha</p>	<p>0.31 L/ha plus 420 g ae/ha 0.41 L/ha plus 560 g ae/ha</p>	<p>Low rate: cleavers (1-4 whorls), Canada thistle (low infestations), volunteer flax (1-12 cm), flixweed (spring seedling 2-4 lf), kochia ♦♦♦, lamb's-quarters, wild mustard, shepherd's purse, stinkweed, volunteer sunflower and suppression of stork's-bill (1-8 leaf)</p> <p>High rate: cleavers (1-4 whorls), flixweed♦♦, kochia♦♦♦, lamb's quarters, shepherd's-purse, stinkweed, stork's bill (1-8 leaf), sunflower (volunteer),volunteer flax (1-12 cm), wild mustard, tartary, buckwheat, wild buckwheat (1-4 leaf), Canada thistle ♦ (medium to high infestations), volunteer canola, dandelion ♦♦ common groundsel, round-leaved mallow (1-6 leaf), red-root pigweed, Russian pigweed, scentless chamomile, smartweed, annual sowthistle, perennial sowthistle♦, and suppression of common chickweed ♦♦♦, hemp-nettle (2-6 leaf stage)</p> <p>♦ Season long control, with some regrowth in the fall (top growth control). ♦♦ spring rosettes only. ♦♦♦ Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme. DO NOT USE ON OATS</p>
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Starane II plus MCPA Ester plus Achieve Liquid	spring wheat durum wheat spring barley	0.21 L/ha or 0.28 L/ha	0.31 L/ha plus 420 g ae/ha plus 0.5 L/ha or 0.41 L/ha plus 560 g ae/ha plus 0.5 L/ha plus Turbocharge 0.5% v/v	plus green foxtail, wild oats DO NOT USE ON OATS
Starane II plus MCPA Ester plus Assert 300 SC	spring wheat durum wheat spring barley	0.21 L/ha or 0.28 L/ha	0.31 L/ha plus 420 g ae/ha plus 1.3 - 1.6 L/ha or 0.41 L/ha plus 560 g a.e./ha plus 1.3 - 1.6 L/ha	wild oats Use 1.3 L/ha of Assert 300 SC on 3-4 leaf wild oats and 1.6 L/ha of Assert 300 SC on 4 leaf wild oats DO NOT USE ON OATS
Starane II plus MCPA Ester plus Everest Solupak 70DF	spring wheat durum wheat	0.21 L/ha or 0.28 L/ha	0.31 L/ha plus 420 g ae/ha plus 43 g/ha or 0.41 L/ha plus 560 g ae/ha plus 43 g/ha	green foxtail, wild oats DO NOT USE ON OATS

Starane II plus MCPA Ester plus Horizon 240 EC	spring wheat durum wheat	0.21 L/ha or 0.28 L/ha	0.31 L/ha plus 420 g ae/ha plus 230 mL/ha + Score Adjuvant 0.8% v/v or 0.41 L/ha plus 560 g ae/ha plus 230 mL/ha + Score Adjuvant 0.8% v/v	green foxtail, wild oats DO NOT USE ON OATS
Starane II plus MCPA Ester plus Puma 120 Super	spring wheat durum wheat spring barley	0.21 L/ha or 0.28 L/ha	0.31 L/ha plus 420 g ae/ha plus 385 - 770 mL/ha or 0.41 L/ha plus 560 g ae/ha plus 385 - 770 mL/ha	green foxtail at 385 mL/ha of Puma 120 Super green foxtail, wild oats, and barnyard grass at 770 mL/ha of Puma 120 Super DO NOT USE ON OATS
Refine Extra plus 2,4-D Ester or MCPA Ester	spring wheat spring barley (Western Canada only)	0.21 L/ha	20 g/ha + Agral 90 Adjuvant 0.2% v/v plus 420 g ae/ha	perennial sow thistle, wild buckwheat, volunteer canola, wild mustard, lady's thumb and stinkweed, while providing seasonal control of Canada thistle and suppression of cleavers DO NOT USE ON OATS

Tank-Mix Instructions

Note 1: If a tank-mix partner requires the addition of an adjuvant add the recommended adjuvant and dilution rate to the tank-mix.

Note 2: When tank mixing with Refine Extra, mix Refine Extra herbicide first in fresh water, then add the required amount of FBN Clopyralid 360 SL Herbicide followed by MCPA or 2,4-D herbicides. Add the surfactant last.

SUMMERFALLOW AND NON-CROP FARMLAND

FBN Clopyralid 360 SL Herbicide may be used on summerfallow (one application per year) and non-crop farmland (around farm buildings, storage areas, fence rows, etc.) at 0.83 L/ha for the control of Canada thistle, scentless chamomile, common groundsel, wild buckwheat, the top growth of perennial sow-thistle and volunteer alfalfa. The Canada thistle plants should be between the rosette and the early bud stage and actively growing at the time of spraying.

SEEDLING AND ESTABLISHED GRASSES FOR SEED PRODUCTION AND FORAGE (WESTERN CANADA ONLY)

Including Kentucky bluegrass, smooth brome grass, reed canary grass, creeping red fescue, meadow fescue, tall fescue, meadow foxtail, orchard grass, altai wild ryegrass, Russian wild ryegrass, timothy, crested wheatgrass, intermediate wheatgrass, slender wheatgrass and streambank wheatgrass for forage and seed production and tall wheatgrass for forage only: For control of the weeds listed on the label plus alsike clover, apply FBN Clopyralid 360 SL Herbicide at the rate of 0.42 to 0.83 L/ha in 110 to 220 L/ha of water.

Make one application per season by ground sprayer. For seedling grasses, apply at the 2 to 4 leaf stage. For established grasses, apply at the shot-blade stage, or in the fall after harvest or in early spring. See Grazing and Harvesting for Feed Section.

BALSAM FIR CHRISTMAS TREE PLANTATIONS

For the control of vetch (*Vicia* spp.) apply FBN Clopyralid 360 SL Herbicide at 0.42 L/ha in 150 to 200 L/ha of water as a directed foliar application using a hydraulic sprayer. Best control is obtained when vetch stems are 10 to 15 cm long and prior to the vetch climbing into a tree crown. Avoid contact with the upper two thirds of the tree crown. Do not use on seedbeds, transplants or any over-the-top applications.

SUGAR BEETS

For Canada thistle control apply FBN Clopyralid 360 SL Herbicide at 0.56 to 0.83 L/ha with ground equipment as a foliar spray either broadcast or in a band over the row. When applied in the band, the amount of FBN Clopyralid 360 SL Herbicide should be reduced proportional to the band width. FBN Clopyralid 360 SL Herbicide should be applied when sugarbeets are in the cotyledon to 8 leaf stage. For the most effective control of Canada thistle, apply FBN Clopyralid 360 SL Herbicide as a broadcast treatment to the entire infested area. Do not apply within 90 days of harvest.

RUTABAGA

For control of common ragweed, apply FBN Clopyralid 360 SL Herbicide with a boom sprayer at the rate of 0.56 L/ha in approximately 200 to 300 L/ha of water. Apply as a postemergent spray when ragweed plants are 5 to 10 cm tall. Application to larger ragweed plants will result in reduced weed control. Make only one application per season. Preharvest interval is 83 days.

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE

HIGHBUSH BLUEBERRY: Make one application per year, post emergent for the control of vetch and red and white clover. Apply as a directed spray treatment (ground equipment) targeting weeds and away from the plants (avoid contact with foliage or woody portions to reduce the risk of crop injury) or as a spot treatment under the canopy of highbush blueberry plants. Plants are more sensitive to FBN Clopyralid 360 SL applied in the spring prior to bloom, before and/or during the crop's annual flush of growth, than after bloom. Do not apply FBN Clopyralid 360 SL from one week prior to bloom until one week after bloom. Apply at a rate of 0.42 L/ha for vetch and 0.83 L/ha for red and white clover. The Pre-harvest interval is 45 days.

CANOLA - ONTARIO ONLY: To be used on Canola in Ontario on the following NATIONALLY REGISTERED in Canada spring canola cultivars: Cyclone, Ebony, Jewel, 46A65 and Hyola 401.

Weeds Controlled	Rate	4.45 L Bottle Will Treat	For Optimum Results
Canada thistle, scentless chamomile, wild buckwheat, perennial sow-thistle (top growth), common groundsel	0.42 L/ha to 0.56 L/ha	10.6 ha to 7.9 ha	1. Treat when weeds are actively growing. 2. Use 100 to 200 L/ha spray solution for uniform coverage

Make one application per season; post emergent. Apply at the 2-6 leaf stage of canola, when weeds are actively growing. Apply to Canada thistle at the rosette to pre-bud stage.

BEARING AND NON-BEARING APPLES: To be used as a spot treatment on bearing and non-bearing apples for control of perennial vetch species. When using a hand gun or backpack sprayer to treat small infestations, apply FBN Clopyralid 360 SL Herbicide at a rate of 56 ml per 1000 square metre area in 200 L of water when vetch species are in the early flowering stage. When applying with a boom sprayer to treat larger infestations, apply 560 ml of FBN Clopyralid 360 SL Herbicide per hectare in 150-200 L water. Avoid contact of the spray with the tree limbs. For best results apply in early spring. Allow at least 30 days between weed treatment application and harvest.

CABBAGE, CAULIFLOWER, BROCCOLI AND KOHLRABI (ALL TRANSPLANTED), NAPPA CABBAGE (TRANSPLANTED AND SEEDED), CHINESE RADISH, MUSTARD CABBAGE AND CHINESE BROCCOLI (ALL SEEDED). Make one application per year to control ragweed, vetch, common groundsel, Canada thistle and for suppression of sheep sorrel. Apply post planting as a ground application only.

Application rate: Apply at a rate of 0.56 L/ha in 300 L water/ha. The pre-harvest interval (PHI) is 30 days.

CRANBERRY: Make one-two applications per year, for the control of vetch. Apply with wiper-type application equipment.

Wipe treatments may be applied as a spot application. The treatment may be applied using equipment such as a hockey stick applicator. **The treatment solution should be wiped onto weed foliage which extends above the cranberry canopy.** Wiper applications may be made in the fall at least 2 weeks after harvest and after the vines have attained their winter dormancy colour, and in the spring prior to bud-break. Wiper application treatments may also be applied following cranberry bud-break (first emergence (1 to 2 mm) of terminal meristem) to control late emerging weeds or weeds which escaped earlier control measures. **Contact of the treatment solution with cranberry foliage after bud break should be avoided since it will result in plant injury.**

Application rate: Apply a 2% solution of FBN Clopyralid 360 SL Herbicide in water (20 mL product/L water). The preharvest interval is 60 days.

TURNIP

For control of labeled weeds, apply FBN Clopyralid 360 SL Herbicide with a boom sprayer at the rate of 0.42 -0.56 L/ha in approximately 200 to 300 L/ha of water. Apply as a postemergent spray when weeds are young and actively growing. Make only one application per season. Preharvest interval for turnip roots is 30 days, for turnip greens is 15 days.

WEED CONTROL IN SHELTERBELTS: For control of Canada thistle in shelterbelts of villosa lilac, acute willow, Colorado spruce, white spruce, buffaloberry and chokecherry. Make one application per year. Apply to Canada thistle at the rosette to pre-bud stage, post emergent, ground application only.

Application rate: Apply at a rate of 0.83 L/ha.

STRAWBERRY (Renovation)

For control of tufted vetch and Canada thistle and suppression of sheep sorrel and ox-eye daisy, apply FBN Clopyralid 360 SL Herbicide at the rate of 0.56 to 0.83 L/ha. Apply as a broadcast application with a boom sprayer calibrated to deliver a total volume of 150 to 200 L/ha. For Canada thistle control, refer to the Control of Canada Thistle section for rate selection. For control of tufted vetch apply at the 0.56 L/ha rate. For sheep sorrel and ox-eye daisy, apply at the 0.83 L/ha rate. Apply as the single treatment immediately after harvest but before mowing. Wait at least 7 to 10 days after FBN Clopyralid 360 SL Herbicide application before mowing. Do not apply FBN Clopyralid 360 SL Herbicide after mid-August because of its possible effects on runner development and flower bud formation. Later applications of FBN Clopyralid 360 SL Herbicide may cause crop damage resulting in reduced yields in the season following treatment.

Apply FBN Clopyralid 360 SL Herbicide only as a summer renovation treatment.

Do not apply FBN Clopyralid 360 SL Herbicide more than once per year.

Early strawberry varieties such as Annapolis or Veestar may be more susceptible to injury. Certain environmental stresses such as drought, flooding or severe overwintering conditions may increase the risk of injury from FBN Clopyralid 360 SL Herbicide.

CONTROL OF TUFTED VETCH IN LOWBUSH BLUEBERRY IN EASTERN CANADA ONLY

Apply FBN Clopyralid 360 SL Herbicide to control tufted vetch in lowbush blueberry. **FOR SPOT APPLICATION ONLY.** When using a hand gun or backpack sprayer to treat small infestations, apply FBN Clopyralid 360 SL Herbicide at a rate of 42 ml per 1000 square metre area in 200 L of water. When applying with a boom sprayer to treat larger infestations, apply 420 ml of FBN Clopyralid 360 SL Herbicide per hectare in 150-200 L water. Make one application per year, in the non-bearing year (prune year). Apply in June OR when tufted vetch is in early bloom. Applications of FBN Clopyralid 360 SL Herbicide may cause crop damage resulting in reduced yields in the season following application. The Pre-harvest interval is 10 months.

CONTROL OF CANADA THISTLE AND OTHER LABELLED WEEDS IN POPLAR SPECIES AND THEIR HYBRIDS

Apply FBN Clopyralid 360 SL Herbicide at a rate of 0.83 L/ha to control Canada thistle and other labelled weeds in new and established short rotation intensive culture crops of poplar (*Populus*) species and their hybrids. Make one application per year. Apply to Canada thistle in the rosette to pre-bud stage. Apply by ground application only using an overall spray or as a directed spray to the base of the tree. Some leaf cupping and stem twisting may occur, but will not adversely affect growth.

WARNING: Poplar clones/hybrids vary in their tolerance to FBN Clopyralid 360 SL Herbicide. Injury observed includes leaf injury, leaf cupping, stem twisting, height reduction and diameter reduction. As not all clones/hybrids have been tested for tolerance to FBN Clopyralid 360 SL Herbicide, use of this product should be limited to a small area of each clone/hybrid to confirm tolerance prior to adoption as a general field practice.

POST EMERGENCE WEED CONTROL IN CONIFERS FOR FIELD PRODUCTION

For the control of labeled weeds in established conifer plantations including Balsam fir, Fraser fir, White spruce, and White pine, apply FBN Clopyralid 360 SL Herbicide at 0.42 to 0.56 litres of product in 150 to 300 litres of water per hectare as a directed spray. Apply as banded sprays on either side of the trees contacting the bottom foliage only. Avoid contact with the upper two thirds of the tree crown. Do not use on seedbeds, transplants, or any over the top applications. Make one application per season.

FBN Clopyralid 360 SL has been tested on Balsam Fir, Fraser Fir, White pine and White spruce. FBN Clopyralid 360 SL may be applied to other non-listed conifer species, however, non-listed conifer species may vary in tolerance to FBN Clopyralid 360 SL. The first use of FBN Clopyralid 360 SL applied to any non-listed conifer species should be limited to a small area to confirm tolerance of each species prior to adoption as a general field practice.

CONTROL OF BROADLEAF WEEDS INCLUDING VETCH ON STONE FRUIT CROP GROUP 12-09

For the control of broadleaf weeds including vetch, apply FBN Clopyralid 360 SL Herbicide at the rate of 0.42 to 0.83 litres of product per hectare in 150 to 300 litres of water per hectare. When using a hand gun or backpack sprayer to treat small infestations, apply FBN Clopyralid 360 SL Herbicide at a rate of 42 to 83 mL per 1000 square meter area in 300 L of water when vetch species are in the early flowering stage. Apply up to the early flowering stage as a spot treatment. Use the higher rate for heavy infestation or when greater residual control is required. Avoid contact of the spray with the tree limbs. For best results apply in the early spring. Do not apply within 30 days of harvest.

REFER TO THE MAIN FBN CLOPYRALID 360 SL HERBICIDE LABEL FOR ADDITIONAL DETAILS AND INSTRUCTIONS, INCLUDING ROTATIONAL CROPPING RESTRICTIONS, BEFORE USING THIS PRODUCT

TRANSLINE™ IVM SYSTEM (NON-CROP USES)

**FOR USE IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA
(INCLUDING THE PEACE RIVER REGION), CENTRAL AND ATLANTIC REGIONS OF CANADA ONLY.**

FBN Clopyralid 360 SL Herbicide may be used on the following non-crop areas: rights-of-way (hydro, railroad, communication lines, pipelines) and associated stations, industrial manufacturing sites, storage sites, vacant lots and roadsides, military bases and low maintenance rough turf areas*. This product is not registered for use on fine turf lawns or turf grass receiving high maintenance. Apply between 0.42 to 0.83 L/ha depending on weeds present and level of Canada thistle control required. Refer to the Weeds Controlled table for appropriate application rate.

*Low-maintenance turf that may contain a diverse mix of hardy, drought-tolerant, slow-growing and low-height turf grasses, fescues, various other taller grasses and wear-tolerant broadleaf species such as clover. Low maintenance turf areas also include those that have little or no fertilizer applications, no irrigation and only receive occasional mowing/cutting. Does not include high maintenance fine turf and turf grass.

TANK-MIX COMBINATIONS

FBN Clopyralid 360 SL Herbicide may be tank mixed with 2,4-D Amine or Ester or MCPA Amine or Ester for control of additional broadleaf weeds on roadsides and vacant lots. FBN Clopyralid 360 SL Herbicide may also be tank mixed with 2,4-D Amine for additional broadleaf use control on rights-of-way (hydro, railroad, communication lines, pipelines) and associated stations, industrial manufacturing sites and storage sites. Read and follow the label of each tank-mix product used for precautionary statements, directions for use, weeds controlled and any other restrictions. When tank mixing adhere to the most restrictive label limitations and precautions.

FBN Clopyralid 360 SL Herbicide at 0.42 to 0.83 L/ha may be tank mixed with 2,4-D or MCPA Herbicides at the rate of 420 to 560 g active ingredient/ha. The tank-mix will control many weeds, including: Canada thistle, cocklebur, common ragweed, dandelion, lamb's-quarters, scentless chamomile, perennial sow-thistle, shepherd's-purse, stinkweed, tartary buckwheat, wild buckwheat and wild mustard. Apply up to the 15 cm height of annual broadleaf weeds.

RANGELAND AND GRASS PASTURE

Including Kentucky bluegrass, smooth brome grass, reed canary grass, creeping red fescue, meadow fescue, tall fescue, meadow foxtail, orchard grass, altai wild ryegrass, Russian wild ryegrass, timothy, crested wheatgrass, intermediate wheatgrass, slender wheatgrass, streambank wheatgrass and tall wheatgrass.

For control of the weeds on the label plus alsike clover, apply FBN Clopyralid 360 SL Herbicide at the rate of 0.42 to 0.83 L/ha in 110 to 120 L/ha of water. Make one application per season by ground sprayer. For seedling grasses, apply at the 2 to 4 leaf stage. For established grasses, apply at the shot-blade stage or in the fall after harvest or early spring. Do not apply tank mixtures containing 2,4-D or MCPA.

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE

FOR USE IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA (INCLUDING THE PEACE RIVER REGION), CENTRAL AND ATLANTIC REGIONS OF CANADA ONLY.

CONTROL OF SPOTTED AND DIFFUSE KNAPWEED IN NON-CROPS AREAS (rights-of-way [hydro, railroad, communication lines, pipelines] and associated stations, industrial manufacturing sites, storage sites, roadsides, airports, military bases and low maintenance rough turf areas*) AND IN RANGELAND, PASTURE AND BALSAM FIR CHRISTMAS TREE STANDS OR PLANTATIONS.

*Low-maintenance turf that may contain a diverse mix of hardy, drought-tolerant, slow-growing and low-height turf grasses, fescues, various other taller grasses and wear-tolerant broadleaf species such as clover. Low maintenance turf areas also include those that have little or no fertilizer applications, no irrigation and only receive occasional mowing/cutting. Does not include high maintenance fine turf and turf grass.

Weeds Controlled

Spotted and Diffuse Knapweed

Application Rate

.70 L/ha

Make one application per year for the control of spotted and diffuse knapweed. Apply in the spring prior to the bud stage of the weeds. Apply in 100 - 200 L water/ha. Apply to both seedling or established plants.

DIRECTIONS FOR USE

FOR USE IN EASTERN CANADA ONLY

POST EMERGENCE WEED CONTROL IN DURUM WHEAT

For the control of labelled weeds, apply FBN Clopyralid 360 SL Herbicide at 0.42 to 0.56 L of product per hectare in 100 to 200 litres of water per hectare. Apply once during the three leaf to flag leaf stage contacting the foliage only. Pre-harvest interval is 60 days.

For the control of giant ragweed, from emergence to the five leaf stage, apply FBN Clopyralid 360 SL Herbicide at a rate of 0.56 litres of product per hectare in 100 to 200 litres of water per hectare. Pre-harvest interval is 60 days.

REFER TO THE MAIN FBN CLOPYRALID 360 SL HERBICIDE LABEL FOR ADDITIONAL DETAILS AND INSTRUCTIONS, INCLUDING ROTATIONAL CROPPING RESTRICTIONS, BEFORE USING THIS PRODUCT.

BUFFER ZONES

Spot treatments using hand-held equipment do not require a buffer zone.

For applications to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, woodlots, hedgerows, riparian areas and shrublands).

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitat
Field sprayer	wheat, barley, oats, flax, canola, forage grasses, high-bush blueberry, low-bush blueberry, strawberry, sugar beet, rutabaga, turnip, spinach, cabbage, broccoli, cauliflower, balsam fir, Christmas tree plantations, shelterbelts, poplar and their hybrids, non-crop uses, rangeland and grass pasture, Brussel sprouts	2*
	Crop group 11-09 (Pome fruit) and 12-09 (Stone fruit)	3

*Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way, including railroad ballast, rail and hydro rights-of-way, utility easements, roads and training grounds and firing ranges on military bases.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the label for those tank-mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, FBN Clopyralid 360 SL Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to FBN Clopyralid 360 SL Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of FBN Clopyralid 360 SL Herbicide or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in any way that is inconsistent with the directions on the label.

All other products are registered trademarks of their respective companies.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	30762
Product Name :	FBN TECHNICAL CLODINAFOP HERBICIDE
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2012-12-05
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2022-12-31
Marketing Type :	TECHNICAL ACTIVE
Active Ingredient(s):	CLODINAFOP-PROPARGYL PIN prop-2-yn-1-yl (2R)-2-{4-[(5-chloro-3-fluoropyridin-2-yl)oxy]phenoxy}propanoate IUPAC prop-2-ynyl (R)-2-[4-(5-chloro-3-fluoro-2-pyridyloxy)phenoxy]propionate CASN = 105512-06-9 (GUAR = 96.75 % NOMINAL)

Date Modified: 2020-08-31

FBN TECHNICAL CLODINAPOP
HERBICIDE

SOLID

FOR USE IN MANUFACTURING OR FORMULATING ONLY

ACTIVE INGREDIENT:
clodinafop-propargyl 96.75%

READ THE LABEL BEFORE USING



REGISTRATION NO.: 30762 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 50-1000 kg

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If exposure to skin or clothing, remove contaminated clothing. Rinse skin immediately with plenty of running water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If exposure through ingestion, call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If exposed through inhalation, move person to fresh air. If person is not breathing, call 911 or an ambulance, then provide artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote is available. Apply symptomatic therapy.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN AND UNAUTHORIZED PERSONNEL.

Strictly observe all precautions for handling and using pesticides. Avoid contact with skin, eyes and clothing. Avoid inhalation of dust. Do not eat, drink or smoke while working. Do not contaminate food, feed or water supplies.

- **Protective Equipment:** Heavy duty cotton or synthetic fabric working clothes (e.g. coveralls). Rubber apron. Heavy-duty shoes or boots. Chemical resistant gloves. Goggles or face-shield. In case of heavy exposure wear: Dust mask.
- **During Work:** After contamination **IMMEDIATELY** wash skin with soap and water. Clean soiled clothing. After eye contact, flush eyes with clean water for several minutes and call a physician or contact a poison control centre **IMMEDIATELY**. Change contaminated clothing.
- **After Work:** Wash thoroughly (shower or bath, wash hair). Change clothing. Thoroughly clean protective gear. Thoroughly clean contaminated equipment with soap or soda solution.

STORAGE

Store in original container in a well-ventilated, cool, dry and secure area. Ship and store away from food, feed or seed.

DECONTAMINATION AND DISPOSAL

Canadian formulators using this product should dispose of unwanted active ingredient and

containers in accordance with municipal or provincial regulations. For additional details and information on clean-up of spills, contact the provincial regulatory agency and the manufacturer.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING CALL 1-613-996-6666 (CANUTEC).

DIRECTIONS FOR USE

To be used only in the manufacture of products registered under the *Pest Control Products Act*.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	31062
Product Name :	FBN GLYPHOSATE TECHNICAL
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2013-09-10
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2023-12-31
Marketing Type :	TECHNICAL ACTIVE
Active Ingredient(s):	GLYPHOSATE N-(phosphonomethyl)glycine CASN = 1071-83-6 (GUAR = 98.0 % NOMINAL)

Date Modified: 2020-08-31

FBN GLYPHOSATE TECHNICAL

FOR MANUFACTURING, FORMULATING OR REPACKAGING

SOLID

DANGER EYE IRRITANT

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

ACTIVE INGREDIENT: Glyphosate98.0%

REGISTRATION NO. 31062 PEST CONTROL PRODUCTS ACT

READ THE LABEL BEFORE USING.

NET CONTENTS: KG

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

DIRECTIONS FOR USE

To be used only in the manufacture of a pest control product registered under the *Pest Control Products Act*.

PRECAUTIONS

Keep out of reach of children and prevent access by unauthorized personnel
Danger – eye irritant.

Severely irritating to the eye. DO NOT get in eyes.
Thoroughly wash hands and exposed skin before eating, drinking, smoking and after handling.

FIRST AID

IF IN EYES, hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF SWALLOWED, call a poison control centre or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

- Toxic to non-target terrestrial plants.
- Toxic to aquatic organisms.

Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment.

In case of an emergency involving this product, call collect, 24 hours a day:
Environment and Health.....1-613-966-6666 [CANUTEC]

STORAGE

Keep away from food, drink and animal feedstuff.
Keep in original container, tightly closed.

DISPOSAL

Canadian manufacturers should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations. For additional details and clean-up of spills, contact the manufacturer or the provincial regulatory agency.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	31364
Product Name :	FBN TECHNICAL QUINCLORAC
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2014-04-17
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2022-12-31
Marketing Type :	TECHNICAL ACTIVE
Active Ingredient(s):	QUINCLORAC 3,7-dichloroquinoline-8-carboxylic acid CASN = 84087-01-4 (GUAR = 100 % NOMINAL)

Date Modified: 2020-08-31

FBN TECHNICAL QUINCLORAC

FOR USE IN MANUFACTURING AND FORMULATING

ACTIVE INGREDIENT: Quinclorac100%

REGISTRATION NO.: 31364

PEST CONTROL PRODUCTS ACT

IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT, CALL DAY OR NIGHT 1-613-996-6666 (CANUTEC)

POTENTIAL SKIN SENSITIZER

READ THE LABEL BEFORE USING.

NET CONTENTS: 1 kg - 100 kg

KEEP OUT OF THE REACH OF UNAUTHORIZED PERSONNEL

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

DIRECTIONS FOR USE:

To be used only in the manufacture of a herbicide which is registered under the *Pest Control Products Act*. Read the Technical Bulletin for formulation details.

PRECAUTIONS:

KEEP OUT OF THE REACH OF UNAUTHORIZED PERSONNEL.

Potential skin sensitizer.

Wash well after handling and before eating, drinking and/or smoking. Wash contaminated clothing with soap and hot water before re-use. Do not wear contaminated shoes.

FIRST AID INSTRUCTIONS:

IN CASE OF EYE CONTACT:

Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IN CASE OF SKIN OR CLOTHING CONTACT:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF SWALLOWED:

Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

Treat symptomatically.

STORAGE:

Keep in original container during storage.

Store product in cool, dry, well ventilated place away from seed, fertilizer or other pesticides. Keep away from fire or open flame or other sources of heat. Keep free of moisture in tightly

sealed container.

DECONTAMINATION AND DISPOSAL:

For spills, wear appropriate safety equipment. Absorb spilled product with inert substance such as sawdust or sand. Wash spill area with a detergent solution.

Do not contaminate irrigation water, lakes, streams or ponds by cleaning of equipment or disposal of wastes.

If involved in fire, use water, fog, foam CO₂ or a dry chemical extinguishing media. Noxious fumes may be produced under fire conditions; wear self-contained breathing apparatus. Prevent water used in fire fighting from entering public water supplies.

Canadian formulators using this product should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	32137
Product Name :	FBN TECHNICAL QUINCLORAC HERBICIDE
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2016-01-05
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2021-12-31
Marketing Type :	TECHNICAL ACTIVE
Active Ingredient(s):	QUINCLORAC 3,7-dichloroquinoline-8-carboxylic acid CASN = 84087-01-4 (GUAR = 100 % NOMINAL)

Date Modified: 2020-08-31

FBN TECHNICAL QUINCLORAC HERBICIDE

FOR USE IN MANUFACTURING AND FORMULATING

ACTIVE INGREDIENT: Quinclorac100%

REGISTRATION NO.: 32137

**PEST CONTROL PRODUCTS ACT
IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS
PRODUCT, CALL DAY OR NIGHT 1-613-996-6666 (CANUTEC)**

POTENTIAL SKIN SENSITIZER

READ THE LABEL BEFORE USING

NET CONTENTS: Bulk

KEEP OUT OF THE REACH OF UNAUTHORIZED PERSONNEL

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

Distributed by:
Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

DIRECTIONS FOR USE:

To be used only in the manufacture of a herbicide which is registered under the *Pest Control Products Act*. Read the Technical Bulletin for formulation details.

PRECAUTIONS:

KEEP OUT OF THE REACH OF UNAUTHORIZED PERSONNEL.

Potential skin sensitizer.

Wash well after handling and before eating, drinking and/or smoking. Wash contaminated clothing with soap and hot water before re-use. Do not wear contaminated shoes.

FIRST AID INSTRUCTIONS:

IN CASE OF EYE CONTACT:

Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IN CASE OF SKIN OR CLOTHING CONTACT:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF SWALLOWED:

Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE:

Keep in original container during storage.

Store product in cool, dry, well ventilated place away from seed, fertilizer or other pesticides.

Keep away from fire or open flame, or other sources of heat.

Keep free of moisture in tightly sealed container.

DECONTAMINATION AND DISPOSAL:

For spills, wear appropriate safety equipment. Absorb spilled product with inert substance such as sawdust or sand. Wash spill area with a detergent solution.

Do not contaminate irrigation water, lakes, streams or ponds by cleaning of equipment or disposal of wastes.

If involved in fire, use water, fog, foam CO₂ or a dry chemical extinguishing media. Noxious fumes may be produced under fire conditions; wear self-contained breathing apparatus. Prevent water used in fire fighting from entering public water supplies.

Canadian formulators using this product should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33179
Product Name :	FBN GLUFOSINATE-AMMONIUM TECHNICAL
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2018-07-20
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2023-12-31
Marketing Type :	TECHNICAL ACTIVE
Active Ingredient(s):	GLUFOSINATE-AMMONIUM AMMONIUM (2RS)-2-AMINO-4-(METHYLPHOSPHINATO)BUTYRIC ACID or Ammonium (3-amino-3-carboxypropyl)methylphosphinate CASN = 77182-82-2 (GUAR = 95 % NOMINAL)

Date Modified: 2020-08-31

**FBN GLUFOSINATE AMMONIUM
TECHNICAL
SOLID**

FOR USE IN MANUFACTURING, FORMULATING, OR REPACKAGING

ACTIVE INGREDIENT: GLUFOSINATE AMMONIUM.... 95 %

REGISTRATION NO. 33179 PEST CONTROL PRODUCTS ACT

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

READ THE LABEL BEFORE USING

DANGER



POISON

**NET CONTENTS:
25 Kg – 500 Kg**

FOR FURTHER INFORMATION, CONTACT:

Farmer's Business Network Canada Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

DIRECTIONS FOR USE:

To be used only in the manufacture of a pesticide which is registered under the *Pest Control Products Act*.

PRECAUTIONS:

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. Fatal or Poisonous if swallowed. Harmful if inhaled. Avoid contact. Avoid inhaling/breathing dusts and sprays. Wash thoroughly after using or before eating or smoking. Wear protective clothing including goggles and respirator when handling technical material.

FIRST AID:

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

Medical personnel should contact CANUTEC at 1-613-996-6666.

TOXICOLOGICAL INFORMATION:

Initial signs of poisoning include vomiting, diarrhea and nausea. Neurological symptoms (which may include impaired consciousness, convulsions, tremor, and coma) may appear suddenly without prior warning, with a delay (latency period) of 8 to 48 hours. Induction of vomiting is not recommended. It should only be considered if a large amount has been swallowed, if the ingestion occurred within the previous hour, and if the patient is fully conscious. Gastric lavage should be considered within the first 2 hours after ingestion. As there is no specific antidote, treatment should be symptomatic and supportive. In case of convulsions, benzodiazepines should be given. If not effective, phenobarbital can be used.

STORAGE:

Keep in original container during storage. Store product away from food or feed. Keep away from fire, open flame, or other sources of heat. Do not store at temperatures below 0 degrees C or above 50 degrees C. Normal storage temperatures should be between 5-30 degrees C.

DISPOSAL:

Canadian manufacturers should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and clean-up of spills, contact the manufacturer or the provincial regulatory agency.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33325
Product Name :	FBN DIQUAT TECHNICAL
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2019-02-01
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2024-12-31
Marketing Type :	TECHNICAL ACTIVE
Active Ingredient(s):	DIQUAT 6,7-DIHYDRODIPYRIDO[1,2-A:2;1'-C]PYRAZINE-5,8-DIUM OR 9,10-DIHYDRO-8A,10A-DIAZONIAPHENANTHRENE OR 1,1'-ETHYLENE-2,2'-BIPYRIDYLDIYLUM CASN = 2764-72-9 (GUAR = 21.76 % NOMINAL)

Date Modified: 2020-08-31

FBN Diquat Technical

TECHNICAL

FOR MANUFACTURERS USE ONLY

For the manufacture of a pesticide for terrestrial use only

ACTIVE INGREDIENT:

Diquat, present as diquat dibromide21.76%

**PREVENT ACCESS BY UNAUTHORIZED PERSONNEL
READ THE LABEL BEFORE USING**

DANGER



POISON

REGISTRATION NUMBER: **33325**
PEST CONTROL PRODUCTS ACT

NET CONTENTS : **Bulk**

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

IF POISONING IS SUSPECTED, call 1-613-966-6666 or contact a physician or poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes, IMMEDIATELY hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If swallowed, give adsorbent suspension, for example either activated charcoal (100 g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄, Na₂SO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column. Delay oxygen treatment as long as possible.

If in eyes, treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

PRECAUTIONS

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical resistant apron over coveralls, chemical resistant gloves, chemical

resistant footwear and goggles or face shield when handling this liquid concentrate. WASH SPLASHES of concentrate from skin and eyes immediately. REMOVE HEAVILY CONTAMINATED CLOTHING IMMEDIATELY and wash before re-use. DO NOT CONTAMINATE feeds, foodstuffs or water supplies.

STORAGE

Store above 0°C. If crystallization occurs because of storage below this, warm product to room temperature and agitate gently until reconstituted.

DISPOSAL AND DECONTAMINATION

Bulk Tank - Bulk tanks are dedicated to diquat concentrates. Rinse the tanks with water and return to place of shipment. Store rinsate in suitable labelled container and use in next batch.

Lined Drums - Wash drums with clean, fresh water as soon as they have been emptied. Dispose of rinsate in mixing tank. To decontaminate, fill the drums with a 1-2% solution of sodium hydroxide and let stand for 24 hours. Wash out with fresh water. Store in suitable container and use in next batch. Punch holes in the empty containers and liners so that they are unsuitable for further use.

Canadian formulators using this product should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations. For additional details and information on clean-up of spills, contact the provincial regulatory agency or the manufacturer.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-613-996-6666***

DIRECTIONS FOR USE

To be used only in the manufacture of a herbicide which is registered under the *Pest Control Products Act*.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33594
Product Name :	FBN CLETHODIM TECHNICAL
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2019-11-05
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2024-12-31
Marketing Type :	TECHNICAL ACTIVE
Active Ingredient(s):	CLETHODIM (5RS)-2-{{(1EZ)-1-[(2E)-3-CHLOROALLYLOXYIMINO]PROPYL}-5-[(2RS)-2-(ETHYLTHIO)PROPYL]-3-HYDROXYCYCLOHEX-2-EN-1-ONE CASN = 99129-21-2 (GUAR = 96.5 % NOMINAL)

Date Modified: 2020-08-31

2019-6008
2019-11-05

FBN CLETHODIM TECHNICAL
Herbicide Liquid
FOR MANUFACTURING PURPOSES ONLY
READ LABEL BEFORE USING

ACTIVE INGREDIENT:
CLETHODIM.....96.5 %

Registration No. 33594

Pest Control Products Act



CAUTION

POISON

NET CONTENTS: 200-1000L

Farmers Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

DIRECTIONS FOR USE

To be used only in the manufacture of a herbicide which is registered under the Pest Control Products Act.

PRECAUTIONS

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. Wear protective gloves and face shield when handling. Remove any contaminated clothing immediately. Wash hands and exposed skin thoroughly after handling.

FIRST AID

Move person from contaminated area, remove contaminated clothing. Keep patient warm, comfortable, and at rest. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing in eye. Call a poison control centre or doctor for further treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

Do not store at temperatures above 0° C (32° F).

SPILLAGE CLEAN UP

Keep bystanders away from the spill area. Do not smoke, drink, or eat during clean up operations. Wear protective equipment (respirator, coveralls, rubber boots and protective gloves) to prevent inhalation and skin or eye contact during clean up operations. After clean up operations, remove and wash all protective clothing and equipment. Shower and wash thoroughly with soap and water.

For spills occurring on land, avoid runoff into storm sewers and ditches that lead to waterways. Clean up spill immediately. Absorb spill with inert material (such as dry sand or earth), then place in a chemical waste container. Wash spill site with soap and water. Pick up wash liquid with additional absorbent and place in an appropriate container for disposal in an approved site. For spills occurring in water, stop or reduce further contamination. This material is insoluble and is heavier than water. Isolate the contaminated water. Remove the contaminated water and place in an appropriate container for treatment and/or disposal in an approved disposal site.

Dispose of damaged packaging materials in an approved manner. Contact the manufacturer and the provincial regulatory agency in case of a spill and for clean-up of spills.

DISPOSAL

Canadian manufacturers should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and clean-up of spills, contact the manufacturer or the provincial regulatory agency.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offense under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Home > Consumer Product Safety > Pesticides & Pest Management > Registrants & Applicants > Tools > Search Product Label

Consumer Product Safety

Label Search Results

Product Information

Registration Number :	33664
Product Name :	FBN CLOPYRALID TECHNICAL HERBICIDE
Registrant Name :	FARMER'S BUSINESS NETWORK CANADA, INC.
Registration Status :	REGISTERED
Date of First Registration :	2020-01-10
Last Sale by Registrant :	
Last Sale by Retail :	
Expiry Date of Registration :	2025-12-31
Marketing Type :	TECHNICAL ACTIVE
Active Ingredient(s):	CLOPYRALID PRESENT AS ACID, OR AS SALTS 3,6-dichloropyridine-2-carboxylic acid or 3,6-dichloropicolinic acid CASN = 1702-17-6 (GUAR = 98.0 % NOMINAL)

Date Modified: 2020-08-31

FBN CLOPYRALID TECHNICAL HERBICIDE

FOR MANUFACTURING USE ONLY

SOLID

ACTIVE INGREDIENT: Clopyralid..... 98.0%

REGISTRATION NO. 33664 PEST CONTROL PRODUCTS ACT

READ THE LABEL BEFORE USING

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

CAUTION



POISON

DANGER – CORROSIVE TO EYES

NET CONTENTS 25-500 kg

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

DIRECTIONS FOR USE

To be used only in the manufacture of a pesticide registered under the *Pest Control Products Act*.

PRECAUTIONS

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

DANGER - CORROSIVE TO EYES

HARMFUL IF ABSORBED THROUGH SKIN OR INHALED

DO NOT get in eyes, on skin or clothing. Wear goggles or face shield and rubber gloves when handling. Avoid breathing dust. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.
IF IN EYES: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

No specific antidote. Supportive care. Treatment based on the judgment of the physician in response to reactions of the patient.

ENVIRONMENTAL HAZARDS

Do not allow this material or waste water or solvent which contains it to discharge into lakes, streams, ponds, public waters or sewers.

STORAGE

Keep in original container during storage. To prevent contamination, store this product in cool, dry, well ventilated place away from food and feed. Keep away from fire or open flame, or other source of heat.

DISPOSAL

Canadian manufacturers should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and clean-up of spills, contact the manufacturer or the provincial regulatory agency.

CLEAN UP INSTRUCTIONS

Cover spillage with an industrial absorbent or sawdust. Sweep up thoroughly and place in a labeled container for safe disposal. Avoid entry of the material into sewers or water courses.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

2019-11-20
2019-6274

FBN PYRACLOSTROBIN TECHNICAL FUNGICIDE
FOR USE IN MANUFACTURING, FORMULATING OR REPACKAGING
SOLID

MANUFACTURING

ACTIVE INGREDIENT: Pyraclostrobin 98.6%

REGISTRATION NO. 33604

PEST CONTROL PRODUCTS ACT

WARNING - POISON
SKIN IRRITANT

READ THE LABEL BEFORE USING

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

NET CONTENTS: 25 – 100 kg

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

DIRECTIONS FOR USE

To be used only in the manufacture of a fungicide which is registered under the *Pest Control Products Act*.

LIMITATIONS

Do not apply directly as is to crops; for formulation only.

PRECAUTIONS

1. **PREVENT ACCESS BY UNAUTHORIZED PERSONNEL.**
2. Do not inhale vapours. May be fatal if inhaled.
3. Causes skin irritation. DO NOT get on skin.
4. Wash well after handling and before eating, drinking and/or smoking. Wash contaminated clothing with soap and hot water before re-use. Do not wear contaminated shoes.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

The patient should be treated symptomatically.

STORAGE

1. Keep in original container during storage.
2. Store product in cool, dry, well ventilated place away from seed, fertilizer or other pesticides.
3. Keep away from heat or open flame or other sources of heat.

DISPOSAL AND DECONTAMINATION

For spills, wear appropriate safety equipment. Absorb spilled product with inert substance such as sawdust or sand. Wash spill area with a detergent solution.

If involved in fire, use water, foam, CO₂ or a dry chemical extinguishing media. Noxious fumes may be produced under fire conditions; wear self-contained breathing apparatus. Prevent water used in fire fighting from entering public water supplies.

Canadian manufacturers using this product should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations. For additional details and information on clean-up of spills, contact the provincial regulatory agency or the manufacturer.

This product is toxic to aquatic invertebrates, fish and aquatic plants. Do not contaminate aquatic areas (streams, lakes, ponds, rivers, tidal marshes and estuaries) through spray drift, cleaning of equipment or disposal of waste.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FBN Tebuconazole Technical

SOLID

FOR MANUFACTURING, FORMULATING OR REPACKAGING

ACTIVE INGREDIENT: Tebuconazole 98.9%

REGISTRATION NO. 33758 *PEST CONTROL PRODUCTS ACT*

READ THE LABEL BEFORE USING

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

CAUTION



POISON

NET CONTENTS: 25 – 1000 kg

Farmer's Business Network Canada, Inc.
PO Box 5607
High River
Alberta, Canada
T1V 1M7

1-844-200-FARM (3276)

DIRECTIONS FOR USE:

Use FBN Tebuconazole Technical to formulate seed treatment products and crop fungicides registered under the *Pest Control Products Act*. To be used only in the manufacture of a pesticide which is registered under the *Pest Control Products Act*. Labelling for products formulated from FBN Tebuconazole Technical must conform to the *Pest Control Products Act*. For specific information on federally registered uses, contact Farmer's Business Network Canada, Inc.

Detailed information on chemical and physical properties and other formulating recommendations for FBN Tebuconazole Technical are available upon request from Farmer's Business Network Canada, Inc. Obtain and read this information before undertaking the formulation of FBN Tebuconazole Technical in order to avoid formulation hazards and insure a satisfactory finished product.

PRECAUTIONS:

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. Harmful if swallowed.

Avoid contact with eyes or clothing. Wash thoroughly with soap and warm water after handling and before eating, drinking or smoking. Wash contaminated clothing with soap and hot water before reuse.

FIRST AID:

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label, or product name and Pest Control Product Registration number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

No specific antidote is available. Treat symptomatically.

In case of poisoning, please contact Farmer's Business Network Canada, Inc. by telephone at 1-844-200-FARM (3276).

ENVIRONMENTAL PRECAUTIONS:

Toxic to aquatic organisms. DO NOT discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other waters.

STORAGE: Store in a cool, dry place. To prevent contamination store this product away from food or feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SPILL OR LEAK PROCEDURE: Handle and open container in a manner as to prevent spillage. If the container is leaking or material spilled for any reason or cause, carefully sweep material into a pile. Refer to Precautionary Statements on label for hazards associated with the handling of this material. Do not walk through spilled material. Dispose of pesticide as directed below. In spill or leak incidents, keep unauthorized people away. You may contact Farmer's Business Network Canada, Inc. by telephone at 1-844-200-FARM (3276) for decontamination procedures or any other assistance that may be necessary.

DISPOSAL:

Canadian manufacturers should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and clean up of spills, contact the manufacturer or the provincial regulatory agency.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

2020-03-05
(revised
2020-05-25)
2020-0493

GROUP

9

HERBICIDE

SMOKE 41 % GLYPHOSATE[®]

**HERBICIDE
AGRICULTURAL AND INDUSTRIAL
Solution**



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L BULK

ACTIVE INGREDIENT: Glyphosate, 360 grams acid equivalent per litre present as the isopropylamine salt

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1(844)200-FARM (3276)

EMERGENCY TELEPHONE NUMBER
IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL
CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666

Registration No. 31063 Pest Control Products Act

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

READ ENTIRE LABEL CAREFULLY BEFORE USE

SMOKE 41% GLYPHOSATE is a non-selective, non-residual herbicide containing 360 g/L glyphosate (free acid) as isopropylamine salt, formulated as a water-soluble liquid. It is used for the control of most herbaceous weeds in agricultural and industrial sites. The product is absorbed through the foliage and translocated throughout the plant down to the root system. Visible symptoms such as gradual wilting and yellowing are usually obvious within 2 to 4 days of application to annual weeds, but may not be apparent for 7 to 10 days on perennial weeds.

GENERAL PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- MAY CAUSE EYE IRRITATION
- HARMFUL IF SWALLOWED
- AVOID CONTACT WITH EYES AND SKIN
- WASH HANDS AND EXPOSED SKIN BEFORE EATING, DRINKING, OR SMOKING, AND AFTER WORK

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S contact 1-866-727-5226 or www.croplife.ca.

FOR GOOD AGRICULTURAL PRACTICE:

- WEAR GLOVES, COVERALLS, AND EYE PROTECTION DURING MIXING, LOADING, CLEANUP, AND REPAIR PROCEDURES
- WASH SPLASHES FROM SKIN AND EYES IMMEDIATELY

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

EMERGENCY TELEPHONE NUMBER: IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666

TOXICOLOGICAL INFORMATION

Treat Symptomatically.

ENVIRONMENTAL PRECAUTIONS

SMOKE 41% GLYPHOSATE is toxic to aquatic organisms and non-target terrestrial plants. Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment. Avoid all drift or contact with vegetation for which treatment is not intended as damage or destruction may occur. Observe buffer zones specified under **Directions for Use**.

- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic, or plastic-lined containers. **DO NOT MIX, STORE, OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or the spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury if ignited by open flame, spark, welder's torch, lighted cigarette, or other ignition source.

STORAGE

KEEP AWAY FROM FOOD, DRINK, AND ANIMAL FEEDSTUFFS. KEEP ONLY IN ORIGINAL CONTAINER, TIGHTLY CLOSED.

IN CASE OF SPILL:

Contact the provincial regulatory authorities and Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) in case of spill, and for clean-up of spills. For environmental concerns call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

DISPOSAL OF CONTAINERS

RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location for the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsing to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with

provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the distributor and the provincial regulatory agency in case of spill, and for clean-up of spills.

RETURNABLE CONTAINERS

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

RETURNABLE-REFILLABLE CONTAINERS

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

NOTICE TO USER:

This control product is to be used only in accordance with the directions on this label. It is an offense under the *Pest Control Products Act* to use a control product in a way that is inconsistent with the directions on the label.

GROUP

9

HERBICIDE

SMOKE 41 % GLYPHOSATE ®

**HERBICIDE
AGRICULTURAL AND INDUSTRIAL
Solution**



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L BULK

ACTIVE INGREDIENT: Glyphosate 360 g/L grams acid equivalent per litre present as the isopropylamine salt

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-3276

EMERGENCY TELEPHONE NUMBER
IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL
CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666

Registration No. 31063 Pest Control Products Act

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

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READ ENTIRE LABEL CAREFULLY BEFORE USE

SMOKE 41% GLYPHOSATE is a non-selective, non-residual herbicide containing 360 g/L glyphosate (free acid) as isopropylamine salt, formulated as a water-soluble liquid. It is used for the control of most herbaceous weeds in agricultural and industrial sites. The product is absorbed through the foliage and translocated throughout the plant down to the root system. Visible symptoms such as gradual wilting and yellowing are usually obvious within 2 to 4 days of application to annual weeds, but may not be apparent for 7 to 10 days on perennial weeds.

GENERAL PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- MAY CAUSE EYE IRRITATION
- HARMFUL IF SWALLOWED
- AVOID CONTACT WITH EYES AND SKIN
- WASH HANDS AND EXPOSED SKIN BEFORE EATING, DRINKING, OR SMOKING, AND AFTER WORK

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S contact 1-866-727-5226 or www.croplife.ca.

FOR GOOD AGRICULTURAL PRACTICE:

- WEAR GLOVES, COVERALLS, AND EYE PROTECTION DURING MIXING, LOADING, CLEANUP, AND REPAIR PROCEDURES
- WASH SPLASHES FROM SKIN AND EYES IMMEDIATELY

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN CONTACT WITH EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

EMERGENCY TELEPHONE NUMBER: IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666

TOXICOLOGICAL INFORMATION

Treat Symptomatically.

ENVIRONMENTAL PRECAUTIONS

SMOKE 41% GLYPHOSATE is toxic to aquatic organisms and non-target terrestrial plants. Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment. Avoid all drift or contact with vegetation for which treatment is not intended as damage or destruction may occur. Observe buffer zones specified under **Directions for Use**.

- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic, or plastic-lined containers. **DO NOT MIX, STORE, OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or the spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury if ignited by open flame, spark, welder's torch, lighted cigarette, or other ignition source.

STORAGE

KEEP AWAY FROM FOOD, DRINK, AND ANIMAL FEEDSTUFFS. KEEP ONLY IN ORIGINAL CONTAINER, TIGHTLY CLOSED.

IN CASE OF SPILL:

Contact the provincial regulatory authorities and Farmer's Business Network Canada, Inc. at 1-844-200-3276 in case of spill, and for clean-up of spills. For environmental concerns call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

DISPOSAL OF CONTAINERS

RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location for the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsing to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the distributor and the provincial regulatory agency in case of

spill, and for clean-up of spills.

RETURNABLE CONTAINERS

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

RETURNABLE-REFILLABLE CONTAINERS

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

NOTICE TO USER:

This control product is to be used only in accordance with the directions on this label. It is an offense under the *Pest Control Products Act* to use a control product in a way that is inconsistent with the directions on the label.

PRECAUTIONS

Avoid contact with desirable vegetation by direct application or spray drift as severe injury or destruction may result. Avoid drift or overspray to non-target vegetation and wildlife habitats.

DO NOT USE IN GREENHOUSES.

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

The restricted entry interval is 12 hours after application for all agricultural uses.

Drain and clean sprayer and parts immediately after using this product.

Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Reduced results may occur if water which contains suspended soil is used; examples are water from ponds and ditches. Poor control may also occur when treating weeds heavily covered with dust.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

GENERAL PRODUCT INFORMATION

SMOKE 41% GLYPHOSATE is a water-soluble herbicide for non-selective weed control. SMOKE 41% GLYPHOSATE is applied as a foliar spray for the control of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

SMOKE 41% GLYPHOSATE moves through the plant from the point of foliage contact into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds effects may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down the activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant, which advances to complete browning of above ground growth and deterioration of underground plant parts.

SMOKE 41% GLYPHOSATE does not provide residual weed control. For subsequent residual weed control, apply a registered residual herbicide. Read and carefully observe cautionary statements and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. **Do not apply if rainfall is forecast for the time of application.**

DIRECTIONS FOR USE

GENERAL APPLICATION NOTES:

Results are best when weeds are actively growing. If weeds have been mowed, allow to return to recommended growth stage. Delay application until vegetation has emerged to the stage described for the control of such vegetation under the ANNUAL and PERENNIAL WEED CONTROL charts of this booklet to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or rootstocks of perennials will not be affected by the spray and will continue to grow. For this reason, best control of most perennial weeds is obtained when the treatment is made at the late growth stages approaching maturity.

Always use higher rates of SMOKE 41% GLYPHOSATE per hectare within the recommended range when weed growth is heavy or dense or weeds are growing in an undisturbed (uncultivated) area. **Do not treat weeds under poor growing conditions such as drought, flooding, frost, high temperatures, disease or insect damage as reduced weed control may result.** Reduced results may also occur when treating weeds heavily covered with dust. Heavy rainfall immediately after application may wash the product off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

SMOKE 41% GLYPHOSATE should only be mixed with products recommended on this label. Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

TANK MIXES

SMOKE 41% GLYPHOSATE may be used with the following surfactants: Agral 90[®], Ag-Surf[®], Companion[™]. See charts on **TANK MIXES FOR ANNUAL** and for **PERENNIAL WEED CONTROL**.

SMOKE 41% GLYPHOSATE may be used with the following herbicides:

Banvel[®], Oracle[®], Pardner[®], Pursuit[®], 2,4-D low volatile ester or amine formulations: See section on **MINIMUM AND ZERO TILLAGE TANK MIXES**.

Princep Nine-T[®], Simadex[®]: See section on **TREE, VINE, AND BERRY CROPS**.

DyCler 480[®], Simazine 80W[®], Simadex[®] Flowable, 2,4-D amine: See section on **NONCROPLAND AND INDUSTRIAL USES**.

Always refer to the surfactant and herbicide labels for specific instructions regarding the use of that product.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Trade Name

Agral 90[®], DyCler[®], Princep Nine-T[®]

Ag-Surf[®]

Banvel[®], Pursuit[®]

Companion[™]

Pardner[®], Simadex[®]

Oracle

Trademark Owners

Syngenta

IPCO

BASF

Dow Chemical Co.

Bayer CropScience

Gharda USA, Inc

VEGETATION CONTROLLED

SMOKE 41% GLYPHOSATE controls many annual and perennial grasses, broadleaf weeds and woody brush and trees when applied as recommended and under the conditions described. For information on how to control specific weeds, including herbicide rate, refer to the ANNUAL WEED CONTROL and PERENNIAL WEED CONTROL charts of this label. The following is a partial list of the weeds controlled:

Table 1: Annual weed control by SMOKE 41% GLYPHOSATE®

Weed Type: Annual Weeds	Genus and Species
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Broomcorn millet	<i>Panicum miliaceum</i>
Cheatgrass	<i>Bromus tectorum</i>
Chickweed	<i>Stellaria media</i>
Cocklebur	<i>Xanthium strumarium</i>
Corn Spurry	<i>Spergula arvensis</i>
Common Lamb's quarters	<i>Chenopodium album</i>
Cow Cockle	<i>Saponaria vaccaria</i>
Dodder	<i>Cuscuta spp.</i>
Downy brome	<i>Bromus tectorum</i>
Eastern black flowering nightshade	<i>Solanum ptycanthum</i>
Fall panicgrass	<i>Panicum dichotomiflorum</i>
Fleabane (Canada)	<i>Erigeron canadensis</i>
Flixweed	<i>Descurainia sophia</i>
Giant foxtail	<i>Setaria faberii</i>
Green foxtail	<i>Setaria viridis</i>
Green Smartweed	<i>Polygonum scabrum</i>
Hairy crabgrass	<i>Digitaria sanguinalis</i>
Hempnettle	<i>Galeopsis tetrahit</i>
Kochia	<i>Kochia scoparia</i>
Lady's thumb	<i>Polygonum persicaria</i>
Narrow-leaf hawk's beard	<i>Crepis tectorum</i>
Narrow-leaf vetch	<i>Vicia angustifolia</i>
Night flowering catchfly	<i>Silene noctiflora</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Persian darnel	<i>Lolium persicum</i>
Prickly lettuce	<i>Lactuca scariola</i>
Ragweed (common)	<i>Ambrosia artemisiifolia</i>

Weed Type: Annual Weeds	Genus and Species
Redroot Pigweed	<i>Amaranthus retroflexus</i>
Russian thistle	<i>Salsola pestifier</i>
Shepherd's purse	<i>Capsella bursa-pastoris</i>
Smooth crabgrass	<i>Digitaria ischaemum</i>
Smooth Pigweed	<i>Amaranthus hybridus</i>
Sowthistle (annual)	<i>Sonchus oleraceus</i>
Stinkweed	<i>Thlaspi arvense</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Volunteer barley	<i>Hordeum spp.</i>
Volunteer canola	<i>Brassica spp.</i>
Volunteer corn	<i>Zea mays</i>
Volunteer flax	<i>Linum spp.</i>
Volunteer wheat	<i>Triticum spp.</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
Wild mustard	<i>Sinapsis arvensis</i>
Wild oats	<i>Avena fatua</i>
Wild tomato	<i>Solanum triflorum</i>
Yellow foxtail	<i>Setaria glauca</i>

Table 2: Perennial weeds control by SMOKE 41% GLYPHOSATE®

Weed Type: Perennial Weeds	Genus and Species
Alfalfa	<i>Medicago sativa</i>
Bluegrass (Canada)	<i>Poa compressa</i>
Bluegrass (Kentucky)	<i>Poa pratensis</i>
Brome grass (smooth)	<i>Bromus inermis</i>
Canada thistle	<i>Cirsium arvense</i>
Common cattail	<i>Typha latifolia</i>
Common milkweed	<i>Asclepias syriaca</i>
Cottontop	<i>Eriophorum chamissonis</i>
Curled dock	<i>Rumex crispus</i>
Dandelion	<i>Taraxacum officinale</i>
Foxtail barley	<i>Hordeum jubatum</i>
Hemp dogbane	<i>Apocynum cannabinum</i>
Hoary cress	<i>Cardaria draba</i>
Japanese knotweed	<i>Polygonum cuspidatum</i>
Perennial sowthistle	<i>Sonchus arvensis</i>
Poison ivy	<i>Rhus radicans</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Quackgrass	<i>Elytrigia repens</i>
Toad flax	<i>Linaria vulgaris</i>
Wormwood (Absinth)	<i>Artemisia absinthium</i>
Yellow Nutsedge	<i>Cyperus esculentus</i>

Table 3: Woody weeds, bush and tree control by SMOKE 41% GLYPHOSATE®

Weed Type: Bush and Trees	Genus and Species
Alder	<i>Alnus spp.</i>
Birch	<i>Betula spp.</i>
Broadleaf meadowsweet	<i>Spiraea latifolia</i>
Canadian rhododendron	<i>Rhododendron canadense</i>
Cedar	<i>Thuja spp.</i>
Cherry	<i>Prunus spp.</i>
Douglas fir	<i>Pseudotsuga spp.</i>
Hemlock	<i>Tsuga spp.</i>
Maple	<i>Acer spp.</i>
Mountain-fly honeysuckle	<i>Lonicera villosa</i>
Pine	<i>Pinus spp.</i>
Poplar	<i>Populus spp.</i>
Raspberry	<i>Rubus spp.</i>
Salmonberry	<i>Rubus spectabilis</i>
Sheep laurel	<i>Kalmia angustifolia</i>
Snowberry (western)	<i>Symphoricarpos occidentalis</i>
Sweet fern	<i>Comptonia peregrina</i>
Willow	<i>Salix spp.</i>
Withrod	<i>Viburnum cassinoides</i>

Resistance Management Recommendations:

For resistance management, SMOKE 41% GLYPHOSATE® Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to SMOKE 41% GLYPHOSATE® Herbicide and other Group 9 herbicides. The resistance biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of SMOKE 41% GLYPHOSATE® Herbicide or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance contact Farmer's Business Network Canada, Inc. at 1-844-200-3276.

APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS

GROUND BOOM AND BOOMLESS SPRAYERS

Mixing: For field or industrial type sprayers, fill the spray tank with one half the required amount of water. Add the proper amount of SMOKE 41% GLYPHOSATE® herbicide (see appropriate chart) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent any excessive foaming. Remove the hose from the tank immediately after filling to avoid back siphoning into water source (a one-way valve should be installed to prevent back siphoning). Use of mechanical agitators may cause excessive foaming. By-pass lines should terminate at the bottom of the tank.

Application: Use flat fan nozzles in boom sprayers. To control perennial weeds, woody brush, and trees as listed, apply SMOKE 41% GLYPHOSATE® in 50 to 300 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure. To control annual weeds as listed, apply SMOKE 41% GLYPHOSATE® in 50 L to 100 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure.

KNAPSACK SPRAYERS, HAND HELD & HIGH-VOLUME EQUIPMENT

High volume spraying utilizes handguns or other suitable nozzle arrangements to apply a directed spray to weeds, woody brush, and trees. Use coarse sprays only.

Mixing: Mix the proper amount of SMOKE 41% GLYPHOSATE with water in a large container. Fill the sprayer with the mixed solution. Unless otherwise stated, make a 1% solution of SMOKE 41% GLYPHOSATE in water (1 L of SMOKE 41% GLYPHOSATE in 100 L of water). A 2% solution (2 L of SMOKE 41% GLYPHOSATE in 100 L of water) should be used on harder to control perennials.

Application: Spray coverage should be uniform and complete. Apply on a spray-to-wet basis. Do not spray to the point of runoff. Hand gun application should be properly directed to avoid spraying desirable plants.

MIST BLOWERS

For control of woody weeds, brush, and trees listed in the VEGETATION CONTROLLED list, use the recommended rate of SMOKE 41% GLYPHOSATE in at least 200 L of water per hectare.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

WIPER, WICK AND ROLLER EQUIPMENT

These applicators apply SMOKE 41% GLYPHOSATE solution directly onto the weeds by contacting the weed with an absorbent material containing the herbicide solution. Weeds should be a minimum of 15 cm above the desired vegetation to prevent contact of SMOKE 41% GLYPHOSATE with the desired vegetation.

Mixing: Mix the proper amount of SMOKE 41% GLYPHOSATE with water in a large container. Use this mixed solution in the wiper, wick or roller equipment.

Application: These applicators can be used to control weeds in:

- Industrial sites, tree plantings, and non-crop sites as specified.
- The following agricultural crops:
 - Apple, cherry, peach, pear and plum orchards, grape vineyards, soybeans, dry beans, strawberries, and Cranberries (note: applications must be made before initial pod set in soybeans and dry beans).

The applicator should be adjusted so that the contact point of the wiper, roller, or wick is at least 5 cm above the desirable vegetation. Droplets or foam of the SMOKE 41% GLYPHOSATE solution settling on desirable vegetation may result in discoloration, stunting or destruction. Best results are obtained when more of the weed is exposed to the herbicide solution. It is recommended that two applications be made in opposite directions, if possible. Weeds not contacted will not be affected. This may occur in dense clumps, severe infestation, or when the height of the weeds varies so that not all weeds are contacted. In these instances, a repeat treatment may be necessary.

AVOID CONTACT WITH DESIRABLE VEGETATION

Wiper, Wick, Roller Application Notes:

- Maintain wiper equipment in good operating condition. Care must be taken with all types of wipers to ensure that the absorbent material does not become oversaturated, causing the herbicide to drip onto desirable vegetation.
- Avoid leakage or dripping onto desirable vegetation.
- Adjust height of wiper applicator to ensure proper contact with weeds.
- Keep wiping surfaces clean.
- Maintain recommended roller speed on roller applicators while in use.
- DO NOT use wiper equipment when weeds are wet.
- DO NOT operate equipment at ground speeds less than 4 or greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to ensure good coverage of weeds.
- Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.
- Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended SMOKE 41% GLYPHOSATE herbicide solution directly to the weed.
- Mix only the amount of solution to be used during a one day period, as reduced activity may result from use of leftover solution. Thoroughly drain and clean all equipment immediately after use.

AERIAL APPLICATION

Aerial Application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h (preharvest) or 8 km/h (rights-of-way) at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572,1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Directions for Use (for additional information see section on Aerial Application for Industrial Rights-of-Way ONLY)

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Aerial Use Precautions

Apply only when weather conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following: Volume: Apply the recommended rate in a spray volume of 30-100 L/ha.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of SMOKE 41% GLYPHOSATE accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

BUFFER ZONES:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies). Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Agricultural, forestry and non-cropland systems		Maximum number of applications	Buffer Zones (metres) Required for the Protection of:		
			Aquatic habitats	Terrestrial habitats	
Agricultural crop system and ground boom application method					
Pre-seeding applications for cranberry, filberts, hazelnut and all other crops. Established pasture and summer fallow.		1	1	1	
Filberts or hazelnut		4	1	1	
Strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)		2	1	2	
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, forage grasses and legume including seed production		3	1	2	
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)		4	1	2	
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes		3	1	3	
Agricultural crop system and airblast application method (including mist blower)					
Pasture		1	20	30	
Turfgrass (Prior to establishment or renovation)		2	25	35	
Forest plant system and ground boom application method					
<i>Forest and woodlands > 500 ha</i> Site preparation		2	1	NR	
Forest plant system and airblast application method (including mist blower)					
<i>Forest and woodlands > 500 ha</i> Site preparation		2	1	NR	
Non-cropland system and ground boom application method					
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	3*	
Non-cropland system and airblast application method (including mist blower)					
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	30*	
Agricultural crop system and aerial application method		Wing type			
Crops for pre-seeding treatments only		Fixed and rotary wing	1	15	20
Canola (glyphosate tolerant varieties)		Fixed and rotary wing	3	20	40
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils		Fixed wing	2	20	35
		Rotary wing	2	20	30
Forage grasses and legume including seed production		Fixed and rotary wing	1	20	40
Soybean (glyphosate tolerant varieties)		Fixed wing	3	20	45
		Rotary wing	3	20	40
Summer fallow		Fixed wing	1	20	45
		Rotary wing	1	20	40
Pasture		Fixed wing	1	30	70
		Rotary wing	1	30	55
Forestry system and aerial application method					
<i>Forest and woodlands >500 ha</i> Site preparation		Fixed wing	2	10	NR
		Rotary wing	2	1	NR

<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	5	NR
	Rotary wing	2	1	NR
Non-cropland system and aerial application method				
Non-crop land and industrial uses: rights-of way areas only	Fixed wing	3	100	NR
	Rotary wing	3	60	NR

* Buffer zones for the protection of terrestrial habitats are not required for forestry uses or for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

NR = Not Required

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

AGRICULTURAL AND CROPLAND USES

The following are use situations for SMOKE 41% GLYPHOSATE herbicide. The type of vegetation present and the use situation will dictate the choice of application equipment. Information on the equipment selected to apply SMOKE 41% GLYPHOSATE can be found in the APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section. Use rates can then be selected from the ANNUAL and PERENNIAL WEED CONTROL charts.

PREPLANT TREATMENT

SMOKE 41% GLYPHOSATE can be applied prior to planting of all crops for control of emerged weeds listed on the label. Ensure weeds are at the recommended growth stage at the time of application. Apply BEFORE seeding or transplanting crop.

SUMMER FALLOW

SMOKE 41% GLYPHOSATE may be applied in summer fallow to control weeds listed on the label. Ensure weeds are at the recommended growth stage and actively growing at the time of application. Reduced control may result if weeds are drought stressed. Repeat treatments may be necessary to control later germinating weeds.

MINIMUM AND ZERO TILLAGE SYSTEMS (ALL FIELD CROPS INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES AND CORN)

SMOKE 41% GLYPHOSATE may be applied before or after seeding but before crop emerges for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Weeds should be treated at the growth stage according to the ANNUAL and PERENNIAL WEED CONTROL charts. DO NOT APPLY AFTER CROP EMERGENCE.

Since SMOKE 41% GLYPHOSATE does not provide residual control, application too far in advance of seeding may allow weeds to germinate between application and crop emergence.

MINIMUM AND ZERO TILLAGE TANK MIXES

SMOKE 41% GLYPHOSATE Herbicide plus Pardner[®] (bromoxynil) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley, and oats. See chart on TANK MIXES for ANNUAL WEED CONTROL.

SMOKE 41% GLYPHOSATE Herbicide plus Pursuit[®] can be applied before or after seeding, but prior to crop emergence in soybeans. SMOKE 41% GLYPHOSATE herbicide will control emerged weeds listed on this label when applied as directed (see VEGETATION CONTROLLED lists). Pursuit[®] will control weeds germinating from seed. Add the recommended rates of both products in 100 L of water/ha following the instructions on the Pursuit[®] herbicide label.

Refer to the Pursuit[®] label for further information on weeds controlled, application directions, and use precautions. Only SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT and WINTER WHEAT may be planted the season following a Pursuit[®] application. Winter wheat may be planted the same year as a Pursuit[®] application to soybeans, but not earlier than 120 days after the application.

DO NOT APPLY AFTER CROP EMERGENCE.

**Table 4: SMOKE 41% GLYPHOSATE® TANK MIXES for ANNUAL WEED CONTROL:
Summer fallow & minimum tillage systems treatment rates**

TANK MIXTURES	RATE L/ha	WEEDS CONCONTROLLED++	COMMENTS: (Apply in 50-100 L/ha water; add 350 mL/ha surfactant)
SMOKE 41% GLYPHOSATE + Banvel® or Oracle®	0.75 - 1.0 + 0.29	Volunteer cereals, wild oats, green foxtail, volunteer canola (rapeseed), wild mustard, flixweed*, lamb's quarters, lady's thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *SMOKE 41% GLYPHOSATE applied at 1.0 L/ha rate only. **Suppression only. See other tank mixtures for control options.
SMOKE 41% GLYPHOSATE + Pardner®	0.75 - 1.0 + 1.25	Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's thumb, stinkweed, wild buckwheat*, redroot pigweed**, kochia**, wild oats**	This tank mix for summer fallow use; and prior to planting wheat, oats, and barley in minimum tillage systems. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use SMOKE 41% GLYPHOSATE at 1.0L/ha rate for wild buckwheat control. **1.0L/ha rate, suppression only. See other tank mixtures for control options.
SMOKE 41% GLYPHOSATE® + 2,4-D#	0.75 - 1.0 + 1.2	Volunteer cereals, wild oats*, green foxtail*, volunteer canola (rapeseed), wild mustard, Flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters**, Russian thistle**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use SMOKE 41% GLYPHOSATE at 1.0 L/ha rate only for wild oat and green foxtail control. **Suppression only. See other tank mixtures for control options.

#0.56 kg ai/ha of 2,4-D. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

++For foxtail barley suppression, refer to chart on ANNUAL WEED CONTROL.

NOTE: All SMOKE 41% GLYPHOSATE herbicide tank mixtures for annual weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf® and Companion™. Surfactant should be added at a rate of 350 mL per hectare in 50-100 L of clean water.

Table 5: SMOKE 41% GLYPHOSATE® tank mixtures for perennial weed control summer fallow or fall stubble

TANK MIXTURES	RATE L/ha	WEEDS CONTROLLED	COMMENTS:
SMOKE 41% GLYPHOSATE® + Banvel® or Oracle®	1.7 L/ha + 1.25 L/ha	Canada thistle, perennial sow thistle	Apply in 100-200 L/ha water; add 350 mL/ha surfactant Summer fallow: Cultivate in the spring and apply when majority of thistles are 15 to 25 cm tall, and before the bud stage. Cultivate 3 weeks after application. Fall stubble: Apply to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: All SMOKE 41% GLYPHOSATE® herbicide tank mixtures for perennial weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf®, or Companion™.

Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mix.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

FALL STUBBLE

Apply in the fall as a postharvest stubble treatment for control of perennial weeds including quackgrass and Canada thistle. Allow the Canada thistle and quackgrass to regrow to 20-25 cm tall. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frost prior to treatment may decrease control.

SPOT TREATMENT (IN CROP)

SMOKE 41% GLYPHOSATE may be applied for the control of Canada thistle, quackgrass and other perennial weeds in forage crops, barley, wheat, oats, soybeans and legumes, including seed production. Treatments may be made up to heading of small grain, initial pod set on soybeans and legumes and emergence of seed heads. Avoid drift beyond the treated area.

Application can be made using a boom sprayer, knapsack, or high-volume equipment (see APPLICATION AND MIXING INSTRUCTIONS section). Applications should be made using the same growth stages as listed in the ANNUAL and PERENNIAL WEED CONTROL charts. Or, use a 1% solution for annual weeds and quackgrass and a 2% solution for other perennial weeds (a 1% solution equals 1 litre SMOKE 41% GLYPHOSATE® herbicide in 100 litres of spray solution). The 1% and 2% solutions should be applied to wet, but not to run off.

NOTE: THE CROP IN THE TREATED AREA WILL BE KILLED BY THE TREATMENT.

DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS BEFORE GRAZING IN, OR HARVESTING TREATED AREAS AS FORAGES.

FORAGE GRASSES AND LEGUMES

Use SMOKE 41% GLYPHOSATE® to control or suppress existing vegetation prior to emergence of legumes and grasses. If legumes and grasses are underseeded with a cover crop, SMOKE 41% GLYPHOSATE® must be applied prior to planting any cover crop.

PASTURE RENOVATION

SMOKE 41% GLYPHOSATE® may be used to control or suppress existing vegetation for zero tillage seeding of legume or grass pasture into established sod for renovation. Weed growth should be at least 20 cm high and most weed seeds should have germinated at the time of spraying.

FORAGE SEED PRODUCTION (FOR SPOT TREATMENT)

SMOKE 41% GLYPHOSATE® may be applied as a spot treatment for control of perennial weeds such as quackgrass and Canada thistle in seed fields. Apply to weeds at least 20-25 cm in height but before emergence of seed head.

The crop in the treated area will be killed. For this reason, take particular care to avoid drift outside the treated area.

PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, DANDELION, TOADFLAX and MILKWEED; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, dandelion, toadflax and common milkweed, and season-long control of perennial sow thistle, SMOKE 41% GLYPHOSATE® can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linolenic acid varieties), lentils, peas, dry beans and soybeans. DO NOT apply to crops grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tilling may interfere with harvest operations. **EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN THE ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.**

SMOKE 41% GLYPHOSATE® should be applied pre-harvest at 2.5 L/ha in 50 to 100 L/ha of clean water, by GROUND APPLICATION ONLY.

When to Apply: Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS chart for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7-14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Use Precautions: Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g. sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife, should be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

*** DO NOT apply using aerial application equipment ***

Table 6: Guidelines for timing of preharvest applications

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL INDICATORS
WHEAT, BARLEY, OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including glyphosate tolerant varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linolenic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour, pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

Refer to the general guidelines for aerial application as well as specific instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION

FOR PRAIRIE PROVINCES ONLY (Including INTERIOR AND PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators, and aerial application services, approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patternation) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 - 600 microns) or very coarse (600 - 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a SMOKE 41% GLYPHOSATE[®] aerial application training course.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24-month period. All pilots who do not meet the minimum experience standard must work under the direct daily supervision of a qualified pilot.

DIRECTIONS FOR USE

SMOKE 41% GLYPHOSATE[®] may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. SMOKE 41% GLYPHOSATE[®] can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linoleic acid varieties), lentils, peas, dry beans, and soybeans. DO NOT apply to any crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

SMOKE 41% GLYPHOSATE® should be applied at 2.5 L/ha in 20 - 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS for visible indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 - 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Table 7: Guidelines for timing of preharvest applications (restricted use)

CROP(S)	PERCENT GRAIN MOISTURE	VISIBLE SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linoleic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
FORAGES	Not applicable	Normal stage for forage harvesting.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS (including glyphosate tolerant varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.

USE PRECAUTIONS:

AVOID DRIFT ON TO IMPORTANT WILDLIFE HABITATS. EXTREME CARE MUST BE TAKEN WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS.

Apply only in wind conditions in compliance with local and/or provincial regulations. Do not apply when other climatic conditions, including lesser wind velocities, will allow significant drift to occur.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that disperse spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. See # 1 of the NATURE OF RESTRICTION section for additional details.

Do not overspray or allow drift on to bodies of water, wetlands† and/or wetland vegetation (e.g., sloughs, swamps, bogs, marshes, potholes), shelterbelts, woodlots and other cover on the edge of fields.

IN ORDER TO REDUCE THE DRIFT HAZARD TO NON-TARGET PLANTS AND AQUATIC VEGETATION IN THE HABITATS LISTED ABOVE, DO NOT APPLY WITHIN 100 METRES OF THE EDGE OF ANY OF THESE HABITATS. Do not apply directly to roadside ditches, or apply under conditions that would favour drift into roadside ditches.

†A wetland is any land where the water table stands at or above the land surface for at least part of the year, and contains vegetation associated with wetlands such as bulrushes, sedges, cattails, etc.

Ensure uniform application - To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills.

PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.

The maintenance of an organic coating (paint) which meets aerospace specification MILC-38412 may prevent corrosion.

TREE, VINE, and BERRY CROPS

SMOKE 41% GLYPHOSATE® controls annual and perennial weeds in established vineyards or orchards, in blueberry, cranberry, and strawberry, or for site preparation prior to transplanting tree or vine crops. See chart on WEED CONTROL IN TREE, BERRY, and VINE CROPS for rate and time of application information.

This product does not provide residual or pre-emergent weed control. Repeat applications may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. For subsequent weed control, follow a program using residual herbicides or use repeated applications of SMOKE 41% GLYPHOSATE®.

DO NOT APPLY MORE THAN 35 L OF SMOKE 41% GLYPHOSATE® HERBICIDE PER HECTARE PER YEAR. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF THE HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURE BROWN BARK CAN RESULT IN SERIOUS CROPDAMAGE.

Allow annual and perennial weeds that have been mowed, grazed, or cut, time to regrow to recommended growth stage for treatment.

Applications may be made with boom sprayer, shielded sprayers, hand held and high-volume orchard guns, or with wiper, wick, or roller equipment (orchards, vineyards, cranberry and strawberry only).

TREE PLANTING - Shelterbelts, Nursery Stock, Woody Ornamentals

SMOKE 41% GLYPHOSATE® may be applied to control annual and perennial weeds listed on this label. This may be used for site preparation prior to establishing plantations, or as a post directed spray in established plantations of the following species:

Table 8: Trees where SMOKE 41% GLYPHOSATE® may be applied to control

Deciduous Trees		Coniferous Trees	
Name	Genus and Species	Name	Genus and Species
Ash	<i>Fraxinus spp.</i>	Fir	<i>Abies spp.</i>
Caragana	<i>Caragana spp.</i>	Juniper	<i>Juniperus spp.</i>
Cherry	<i>Prunus spp.</i>	Pine	<i>Pinus spp.</i>
Elm	<i>Ulmus spp.</i>	Spruce	<i>Picea spp.</i>
Lilac	<i>Syringa spp.</i>	Yew	<i>Taxus spp.</i>
Maple	<i>Acer spp.</i>		
Mountain ash	<i>Sorbus americana</i>		
Poplar	<i>Populus spp.</i>		
Russian olive	<i>Elaeagnus spp.</i>		
Willow	<i>Salix spp.</i>		

SPRAY MAY CONTACT MATURE BROWN BARK ONLY.

Avoid contact with non-target plants, foliage, or suckers of established plantations.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

GLYPHOSATE TOLERANT CROPS

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA (I.E., VARIETIES WITH THE ROUNDUP® READY GENE).

WARNING: APPLY SMOKE 41% GLYPHOSATE® HERBICIDE ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to the **GENERAL PRODUCT INFORMATION, GENERAL APPLICATION NOTES,** and **APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS** sections.
- Apply SMOKE 41% GLYPHOSATE® herbicide in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visible yellowing may occur when SMOKE 41% GLYPHOSATE® herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

*** DO NOT apply using aerial application equipment ***

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

Table 9: Weed control in canola with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.825 – 1.875	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, wild buckwheat*, shepherd's purse*, cow cockle*, night-flowering catchfly*, smartweed*, storksbill*, flixweed*, narrow-leaf hawk's beard*, roundleaf, mallow* * *</p> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sowthistle, dandelion</p> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sowthistle* * * *</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure. Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use the 1.25 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd's purse, cow cockle and night-flowering catchfly at the 1-3 leaf stage of the crop or for control of smartweed at the 4-6 leaf stage.</p> <p>** A single application at the 1.25 L/ha rate is required. *** Sequential applications at the 1.25 L/ha rate are required. **** Sequential applications at the 1.25 L/ha rate are required or a single application of 1.875 L/ha.</p> <ul style="list-style-type: none"> • For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. • Maximum 2.5 L/ha is allowed for the post emergence use.

TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in glyphosate tolerant canola (i.e., varieties with the Roundup Ready Gene), apply a tank mixture of 0.28 L/ha of Lontrel® 360 with 1.25 L/ha of SMOKE 41% GLYPHOSATE® Herbicide, in 100 litres of water per hectare. Apply when canola is in the 2-6 leaf stage. Refer to the Lontrel® 360 and to the SMOKE 41% GLYPHOSATE® Herbicide labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

Lontrel® is a registered trademark of Dow AgroSciences LLC.

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

WARNING: APPLY SMOKE 41% GLYPHOSATE® HERBICIDE ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

*** DO NOT apply using aerial application equipment ***

Table 10: Weed control in soybean with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Use 100-200 L/ha water volumes)
2.5	First trifoliate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's thumb, Pennsylvania smartweed, eastern black flowering nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, milkweed*, yellow nutsedge*, fall panicum, wild proso millet	A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. This second application must be made no later than the flowering stage of the soybean. *Suppression only
2.5 (x2)	First trifoliate leaf stage through flowering	Perennial sowthistle, Canada thistle, wire-stemmed muhly	A second (sequential) application of 2.5 L/ha will improve control in heavy weed infestations. If sequential applications of 2.5 L/ha are used they should be at least 2 weeks apart for best results on perennial weeds. This second application must be made no later than the flowering stage of the soybean. Perennial sowthistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. Wire-stemmed muhly should be 10-20 cm in height and actively growing. Plants not fully emerged at the time of application will escape the treatment.

Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

Tank Mixtures for Roundup Ready Soybeans

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit[®] herbicide may be tank mixed with SMOKE 41% GLYPHOSATE[®] herbicide at a rate of 2.5 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit[®] and apply up to and including the 3rd trifoliolate leaf stage of the Roundup Ready soybeans in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit[®] as per instructions on the Pursuit[®] label and then add SMOKE 41% GLYPHOSATE[®] herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of SMOKE 41% GLYPHOSATE[®] herbicide and Pursuit[®] herbicide on glyphosate tolerant soybeans.

Only one application per season of SMOKE 41% GLYPHOSATE[®] herbicide at 2.5 litres per hectare tank mixed with Pursuit[®] herbicide at 0.16 to 0.21 litres per hectare is permitted.

Refer to the Pursuit[®] herbicide label for further safety precautions and handling instructions.

NONCROPLAND AND INDUSTRIAL USES

When applied as recommended under the conditions described, SMOKE 41% GLYPHOSATE[®] will control weeds in the non-cropland and industrial uses as listed in the WEED CONTROL IN NONCROPLAND, INDUSTRIAL USES chart.

TURFGRASS

SMOKE 41% GLYPHOSATE[®] may be applied to control existing vegetation prior to turf grass establishment or renovation. **DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.**

Where existing vegetation is growing under field or unmowed conditions, apply SMOKE 41% GLYPHOSATE[®] to actively growing weeds at the growth stages given in the charts on ANNUAL and PERENNIAL WEED CONTROL. Where the vegetation is growing under mowed turf grass management, apply SMOKE 41% GLYPHOSATE[®] after omitting at least one regular mowing to allow sufficient growth for good spray interception and translocation into underground plant parts.

Tillage or renovation techniques, such as vertical mowing, coring or slicing, should be delayed for 7 days after application to allow proper translocation into the underground plant parts. Delay establishment of the turfgrass to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient weed regrowth must be attained prior to application.

AVOID ALL CONTACT WITH DESIRABLE VEGETATION IN THE VICINITY OF THE RENOVATION OR ESTABLISHMENT AREA.

TREE INJECTION APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Trees may be controlled if SMOKE 41% GLYPHOSATE® is injected directly into the trunk using suitable equipment that penetrates into the living tissue.

SMOKE 41% GLYPHOSATE® is to be used at a rate of 1 mL (undiluted product) per 10 cm of trunk diameter at chest height. The injections should be spaced evenly around the tree and below any major branches. Application may be done during periods of active growth and full leaf expansion.

Control of trees greater than 20 cm may not be acceptable. Total control may not be evident for 1-2 years following treatment. This treatment will only provide suppression of big-leaf maple; late fall application will provide optimum suppression of big-leaf maple.

CUT STUMP APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Application must be made using low-pressure equipment (i.e. squirt bottle). Apply SMOKE 41% GLYPHOSATE® immediately to the surface of the freshly cut stump (i.e. within 5 minutes) at a rate of 0.5 mL SMOKE 41% GLYPHOSATE® for every 5 cm of trunk diameter at chest height. Treat only the cambial tissues (outer edge) of the cut surface. Do not treat the central area of the stump, or exposed roots or bark. This treatment may be made at any time of year, except during heavy sap flow or when freezing temperatures prevent application of SMOKE 41% GLYPHOSATE®. A water-soluble dye added to the solution may be used as a treatment indicator. Total control may not be apparent until 1-2 years after treatment.

WOODY BRUSH AND TREES (FOLIAR APPLICATIONS)

Spray coverage should be uniform and complete. Do not spray to the point of run off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on the target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

For woody brush and trees, apply 3 to 6 litres of SMOKE 41% GLYPHOSATE® per hectare. Use ground boom or boomless equipment, or apply as a 1 to 2% solution using hand held high volume equipment. Use the 6 L/ha rate for maple, alder and willow* species, as well as hard to control perennial weed species. (* Suppression only).

INDUSTRIAL SITES, RIGHTS-OF-WAY, RECREATIONAL AND PUBLIC AREAS

SMOKE 41% GLYPHOSATE® may be applied to control brush, trees, and annual and perennial weeds listed on this label **in industrial and rights-of-way areas, such as:** railways, forest roadsides, pipelines, highways, pumping stations, petroleum tank farms, telephone and power rights-of-ways, etc., **and in recreational and public areas, such as:** parks, golf courses, schoolyards, airports and other public areas.

NOTE: For all industrial sites, rights-of-ways, recreational and public areas, repeat treatment may be necessary to control regeneration or new growth.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

GROUND APPLICATION FOR ALL NON-CROPLAND USES:

For woody brush and trees, apply SMOKE 41% GLYPHOSATE® at 3 to 6 L/ha using ground boom, or boomless, or mist blower equipment. Or, apply as a 1 to 2% solution using hand-held high volume equipment. Use the higher rate for maple, alder and willow* species, and for hard to control perennial weeds (*suppression only). Apply as directed to foliage of actively growing vegetation. Spray coverage should be uniform and complete. Do not spray to the point of runoff, or allow spray drift to contact desirable vegetation as severe injury or destruction may occur.

Mowed or tilled weeds should be allowed to reach optimum growth stage at time of application.

DO NOT APPLY UNDER WIND OR OTHER CONDITIONS THAT ALLOW DRIFT.

AERIAL APPLICATION: FOR INDUSTRIAL RIGHT-OF-WAY ONLY:

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Use Precautions

Directions for Use:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical-resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing

ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a spray volume of 30-100 L/ha.

Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of SMOKE 41% GLYPHOSATE[®] accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion. For woody brush and trees, apply 3-6 L/ha. Use 6 L/ha for maple, alder and willow* species, and for hard to control perennial weed species. Use the recommended rates of the herbicide in 30 to 100 litres of water per hectare. As density of vegetation increases, spray volume should be increased within the allowed range to ensure complete coverage. (*suppression only)

PURPLE LOOSESTRIFE CONTROL

- DO NOT TREAT PLANTS OVER OPEN WATER. SMOKE 41% GLYPHOSATE[®] herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using handheld equipment, spray-to-wet.
- For wiper applications, see WIPER, WICK AND ROLLER EQUIPMENT section.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

Table 11: Weed control in non-cropland areas, and industrial uses

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Annual grasses and broad leaf weeds	2.25-3.5	50 - 100	1	Treat actively growing weeds.
Perennial Weeds	2.5	50 - 300	1	Treat actively growing weeds. Add 0.5% v/v of a recommended surfactant when using more than 150 L of water (see MINIMUM AND ZERO TILLAGE TANK MIXES) Use higher rate for heavy infestations and for long term control.
Quackgrass	4.75-7.0	50 - 300	2	
Canada thistle (bud stage)	4.75-7.0	100 - 300	2	
Purple loosestrife	6.0	300 – 600	1-2 (or 33% for wiper application)	See PURPLE LOOSESTRIFE CONTROL section for instructions on application. Summer through fall is optimum.
Other perennials	7.0-12	100 – 300	2	
Brush and Trees Birch, Cherry, Poplar, Western Snowberry, Willow	3.0-6.0	100-300	1-2	Summer through early fall.
Maple, Raspberry/ Salmonberry, Alder	6.0	100 – 300	2	Late summer through fall. Fall is optimum.
Turfgrass renovation: Annual & Perennial Weeds	2.5 – 12.0	100 – 300	1-2	Use higher end of rate range for perennials.

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Roadside vegetation (1-2 metres wide along shoulder)	1) 0.75 – 1.0 + 1.25 – 2.5L DyCleer 480® Agricultural Herbicide OR 2) 0.75 – 1.0 + 0.30L DyCleer 480® Agricultural Herbicide + 1.2L 2,4-D amine 500	25 – 150	-	Refer to tank mix section on product labels for specific weeds controlled. Refer to chart on ANNUAL WEED CONTROL for rates for specific weeds. For different 2,4-D formulations, adjust the rate accordingly. Do not apply to standing water.
Residual Control Annual & Perennial weeds.	2.5 – 12 + 4.0 – 9.0 L Simadex® Flowable	200 – 400	-	This tank mix will provide season-long control of most germinating broadleaf weeds and grasses, and may also provide post-emergent control of certain annual weeds. Do not apply to coarse, sandy soil or gravelly soil. One application per year. Use the most restrictive label directions for each product in the mix.

Table 12: Weed control in tree, vine and berry crops

CROP	RATE (L/Ha)	PRE- HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Apples, apricot, cherry (sweet/sour), peaches, pears, plums	2.25-12 (directed spray)	30	3	Annual and perennial weeds	Apply as directed spray with no more than 275 kPa pressure.
Apples, grapes	Tank Mix 2.25-12 + Simazine 80W® 2.0-4.5 Kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long pre-emergent control. Do not apply to coarse, sandy or gravelly soil. Use the more restrictive label directions for each product in the mix. DO NOT apply to orchards established less than 1 year or vineyards established less than 3 years. Simazine 80W® rate is equivalent to 2.25-5.0 kg/ha Princep Nine-T®; or 4.0-9.0 L/ha Simadex®.
Grapes	2.25-12 (directed spray)	14	3	Annual and perennial weeds	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. Do not apply to vines that have been established less than 3 years.
Highbush (cultivated) blueberry	2.8-5.6 (directed spray)	30	1	Quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	1-2% solution (spot treatment)	Apply in non-bearing year only	1	Wood brush	Apply as directed spray in mid-summer of the vegetative (non-bearing) year. See AGRICULTURAL AND CROPLAND USES section for instructions on spot treatments.

CROP	RATE (L/Ha)	PRE- HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Filberts, hazelnut (established plantations)	2.25-3.5 (directed spray)	14	-	Annual weeds	Use as directed spray, with no more than 275 kPa pressure.
Walnut, chestnut, Japanese chestnut	2.25-12 (directed spray)	-	2	Annual and perennial weeds	Apply late spring and fall, post-harvest but prior to a killing frost. Apply in 200-300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 2% wiper solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Cranberry	20% Solution (1L SMOKE 41% GLYPHOSA TE® + 4 L water)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Strawberry	1-2% Solution (spot treatment) 33% solution (wiper applicator)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage. See AGRICULTURE AND CROPLAND USES section for instructions on spot treatments. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.

Table 13: Annual weed control

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or boomless	Wild oats, green foxtail, volunteer barley volunteer wheat, volunteer canola, wild mustard, lady's thumb, stinkweed.	Weeds up to 8 cm in height	0.75	50-100	For wild oats apply at 1 to 3 leaf stage. Add 350 mL of a surfactant registered for use such as Agral 90 [®] , Ag-Surf [®] , and Companion [™] . For heavy wild oat infestations use 1.0 L/ha rate.
	All annual grasses listed above plus foxtail barley* (suppression only). All annual broadleaf weeds listed above plus flixweed** and kochia**.	Weeds 8 cm to 15 cm	1.0	50-100	Add 350 mL of Surfactant registered for use as listed above. *Apply before initiation of seed head or senescence of the lower leaves. **Suppression only. Refer to higher rates of this table.
	All annual grasses listed above plus downey brome, giant foxtail and Persian darnel. All annual broadleaf weeds listed above plus lamb's quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, narrow-leaf hawk's beard***.	Weeds up to 15 cm in height	1.25-1.9	50-100	No additional surfactant required. *DO NOT use these rates on plants greater than 8 cm in height. **For 3 to 4 leaf stage use 1.9 L/ha rate. ***For weeds 8 cm to 15 cm in height use 1.9 L/ha.
	All annual grasses listed above plus crab grass and annual blue grass. All annual broadleaf weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch.	Weeds up to 15 cm in height	2.25	50-100	
	All annual grasses and broadleaf weeds listed above.	Weeds over 15 cm in height	3.5	50-100	

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Wipers and wicks	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	This mixture is a 33% solution. Contact point for wiper or wick must be at least 5 cm above desirable vegetation. In severe weed infestations, reduce ground speed to ensure adequate control. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	0.5- 1.0	10	This mixture is a 5- 10% solution. Roller speed 50-150 rpm. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications.

Table 14: Perennial weed control

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or Boomless	Alfalfa	Early bud to full bloom stage. Fall Applications only.	3.7-5.0	50-300	Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see ALFALFA CONTROL WITH 2,4-D TANK MIX section under SPECIAL NOTES FOR PERENNIAL WEED CONTROL section.
Boom or Boomless	Canada thistle	Bud stage or beyond	4.75 - 7.0	100-300	Allow 5 days after application before tillage. Heavy frost prior to application may decrease control.
		Rosette stage (summer fallow)	2.5	50-100	Apply in clean water using flat fan nozzles. Ensure proper growth stage by performing last summer fallow tillage between July 5 and August 1st. Allow regrowth for a minimum of 5 weeks to reach rosette stage and a minimum of 15 cm in diameter. Allow 10 days after application before tillage. Treatment after a mild frost is possible if leaves are still green and actively growing but not after heavy damaging frost.
Boom or Boomless	Dandelion	Up to 15 cm. in height	2.5	50-100	Allow 3 or more days after treatment before tillage for all rates. Use the higher rates when infestations are heavy.
		Over 15 cm. in height	3.7	50-300	Refer to DANDELION notes in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. Allow 7 or more days after treatment before tillage. For more information, see PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, AND DANDELION;
		Rosette to full bloom (preharvest)	2.5	50-100	SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Foxtail barley	Seeding to heading	2.5-5	50-100	Allow a minimum of 1 day after treatment before tillage or seeding. Use higher rates for larger more established plants, heavy infestations, or if plants are stressed.
Boom or Boomless	Common Milkweed	Bud to full bloom	2.5	50-100	Reduced results may occur if sprayed after full bloom. Milkweed may not all be in the correct stage, therefore, repeat treatments

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
		(preharvest) Bud to full bloom	12	100-300	may be required. Repeat treatment may be required. Allow 7 days or more after application before tillage. See PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Toadflax	Vegetative stage (summer fallow) Bud to full bloom (pre-harvest)	2.5	50-100	Apply in clean water using flat fan nozzles. Allow 7 or more days after treatment before tillage in summer fallow. For more information, see Summer fallow Control under TOADFLAX in SPECIAL NOTES FOR PERENNIAL WEED CONTROL section, or PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Quack grass control, light to moderate infestations	3 to 4 green leaves or more	2.5	50-300	Apply in clean water using flat fan nozzles. Allow 3 or more days after treatment before tillage. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. For higher water volumes (ie.,150- 300L/ha) an approved surfactant must be added at 0.5 L per 100L of clean water. (0.5% v/v). Refer to list of surfactants in QUACKGRASS part of SPECIAL NOTED FOR PERENNIAL WEED CONTROL section. See also below.
	Quack grass (long term control, heavy infestations, high water volumes)	3-4 green leaves or more	2.5 - 7.0	50 - 300	Allow 3 or more days after treatment before tillage. Rates higher than 2.5L/ha will provide more consistent, longer term control especially with heavy infestations and/or higher (150-300 L) water volumes. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information.

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
	Other perennial weeds	Early heading or early bud stage (See VEGETATION CONTROLLED section)	7-12	100-300	Use higher rate for weeds beyond 8 cm in height or in heavy weed infestation. Allow 7 days after application before tillage. SMOKE 41% GLYPHOSATE® rate is equivalent to 70 to 120 mL/100 m ² .
	Woody brush and trees	Actively growing from June through August.	3-6	100-300	Use higher rate for maple, alder, Rubus species and willow*. Spray to wet.
High volume or knapsack	Woody brush and trees	Actively growing from June through August.	1-2.0	100	This mixture is a 1 to 2% solution. Use higher rate for maple, alder, Rubus species and willow*. Spray to wet. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on high volume or knapsack applications.
Wipers and wicks	Perennial weeds	Weeds to be at least 15 cm above desirable vegetation.	1	2	See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual and perennial weeds	Weeds to be at least 15 cm above desirable vegetation.	0.5-1.0	10	This mixture is a 5-10% solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications. This treatment will only suppress perennial weeds contacted. Roller speed 50-150 rpm.
Tree Injection	Trees*	During periods of active growth and full leaf expansion except during periods of heavy sap flow.	0.5 mL/5 cm of trunk diameter at chest height	None	Suitable equipment must be used to penetrate to living tissue. Space applications evenly around the circumference of the trunk below major branches. Control of trees with trunk diameters greater than 20 cm may not be acceptable. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on TREE INJECTION APPLICATIONS. *Suppression only for willow.

SPECIAL NOTES FOR PERENNIAL WEED CONTROL

QUACKGRASS

For **season-long control on fall tilled ground**: Apply 2.5 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SURFACTANTS

The following is a list of approved surfactants for use with SMOKE 41% GLYPHOSATE® Herbicide for control of quackgrass:

Agral 90®
Companion™
Ag-Surf®

Always refer to surfactant label for specific instructions regarding use of that product.

CANADA THISTLE

Control of Canada thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SMOKE 41% GLYPHOSATE® HERBICIDE PLUS BANVEL® OR ORACLE® TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summer fallow or in postharvest stubble, apply 1.7 litres per hectare SMOKE 41% GLYPHOSATE® Herbicide plus 1.25 litres per hectare Banvel® or Oracle® in 100-200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90®, Ag-Surf®

or Companion™. For best results in summer fallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

TOADFLAX

Control of Toadflax in a Summer Fallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 10th and July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are a minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 2.5 to 5.0 litres per hectare SMOKE 41% GLYPHOSATE® Herbicide and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 2.5 to 5.0 litres per hectare SMOKE 41% GLYPHOSATE® Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14-day interval between application and planting is required.

Use the higher SMOKE 41% GLYPHOSATE® Herbicide rates when perennial grasses are prevalent.

ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to **PERENNIAL WEED CONTROL WITH SMOKE 41% GLYPHOSATE HERBICIDE®** table.

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow up tillage after application should be delayed 5 to 7 days for best results. See **ANNUAL AND PERENNIAL WEED CONTROL** tables for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required to control weeds regenerating from seeds or other underground parts.

Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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GROUP	1	HERBICIDE
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FOAX HERBICIDE
Emulsifiable Concentrate

AGRICULTURAL

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER, OKANAGAN AND CRESTON FLATS REGIONS OF BRITISH COLUMBIA ONLY.

A post emergence herbicide for control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian dandelion and volunteer canary seed in Spring wheat and Durum wheat.

ACTIVE INGREDIENT:

Clodinafop-propargyl240 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING. KEEP OUT OF REACH OF CHILDREN.

CAUTION



POISON

WARNING: EYE & SKIN IRRITANT

Warning, contains the allergen epoxidized soybean oil

REGISTRATION NO.: 31261 *PEST CONTROL PRODUCTS ACT*

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

NET CONTENTS: 1.84L, 3.68L, 4.7L, 14L, 15L, 55L, 200L, 450L, 1100L, Bulk

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

This product contains a PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING. Vomiting may cause aspiration pneumonia. Treat symptomatically for ingestion and/or skin and eye contact.

PRECAUTIONS

- CAUTION – POISON
- WARNING – EYE AND SKIN IRRITANT
- KEEP OUT OF THE REACH OF CHILDREN.
- Harmful if swallowed.
- May irritate eyes. Do not wear contact lenses when using.
- DO NOT get in eyes or on skin. Avoid contact with clothing. Wear coveralls or long-sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.

- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse. Wash thoroughly with soap and water after handling. Handle and apply only as recommended on this label.
- Do not eat, drink or smoke while mixing, loading or during application.
- Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours after application.

ENVIRONMENTAL HAZARDS

This product contains aromatic petroleum distillates which are toxic to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic material such as clay).

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorized persons and animals. Store separate from food, feed, and fertilizer.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

For information on disposal of unused, unwanted product, contact the provincial regulatory authorities, manufacturer or Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills or call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

CONTAINER DISPOSAL:

For recyclable containers:

Do not reuse this container for any purpose. This is a recyclable container, and may be disposed of at a container collection site. For details on collection and disposal of containers contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

**IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL OR POISONING, CALL
1-613-996-6666 (collect) OR *666 (cell).**

FOAX HERBICIDE
Emulsifiable Concentrate

AGRICULTURAL

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER, OKANAGAN AND
CRESTON FLATS REGIONS OF BRITISH COLUMBIA ONLY.**

A post emergence herbicide for control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian darnel and volunteer canary seed in Spring wheat and Durum wheat.

ACTIVE INGREDIENT:

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If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

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PRECAUTIONS

- CAUTION – POISON
- WARNING – EYE AND SKIN IRRITANT
- KEEP OUT OF THE REACH OF CHILDREN.
- Harmful if swallowed.
- May irritate eyes. Do not wear contact lenses when using.
- DO NOT get in eyes or on skin. Avoid contact with clothing. Wear coveralls or long-sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.
- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse. Wash thoroughly with soap

- and water after handling. Handle and apply only as recommended on this label.
- Do not eat, drink or smoke while mixing, loading or during application.
- Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours after application.

ENVIRONMENTAL HAZARDS

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To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic material such as clay).

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorized persons and animals. Store separate from food, feed, and fertilizer.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

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For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL OR POISONING, CALL 1-613-996-6666 (collect) OR *666 (cell).

PRODUCT INFORMATION

FOAX HERBICIDE is a systemic, post-emergence herbicide for the selective control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian dandelion and volunteer canary seed in all types of Spring wheat and Durum wheat. Do not use FOAX HERBICIDE on barley, as crop injury will occur. Do not apply this product using aerial application equipment except under conditions specified on this label.

FOAX HERBICIDE is absorbed by the leaves and is rapidly translocated to the growing points of leaves and stems. Thorough coverage of the plants is essential for consistent control. Actively growing susceptible grasses stop growing within 48 hours of treatment. Depending on species, growing conditions and crop competition, leaves and growing points turn yellow within one to three weeks after application. Further colour changes and loss of vigour will be observed, followed by a browning and complete control three to five weeks after application.

Although FOAX HERBICIDE does not control broadleaf weeds, FOAX HERBICIDE can be tank-mixed with a wide range of broadleaf herbicides to provide broad spectrum weed control in wheat. See section entitled "TANK MIXES of FOAX HERBICIDE WITH BROADLEAF WEED HERBICIDES" and refer to the appropriate Tank Mix section for ground and aerial application.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic matter such as clay.)

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.

CROPS: Spring Wheat and Durum Wheat

FOAX HERBICIDE can be used on all varieties of spring wheat and Durum wheat. Observe minimum interval to harvest of 60 days after treatment.

Do not apply on barley or any crop other than Spring Wheat or Durum wheat, as crop damage will result. Do not allow spray to drift to adjacent fields seeded to crops other than spring wheat or Durum wheat.

Do not treat wheat underseeded to forages. Observe a minimum of three (3) days before grazing livestock on crops treated with FOAX HERBICIDE.

For use directions specific to application by air, please refer to sections on aerial application. For aerial application precautions, please refer to the precautions section.

WEEDS CONTROLLED: Wild Oats, Volunteer (Tame) Oats, Green Foxtail, Yellow Foxtail, Barnyard grass, Persian Darnel and Volunteer Canary Seed

TIMING OF APPLICATION:

TIMING	GROWTH STAGE	ADDITIONAL REMARKS
WILD OATS	1 to 6 leaf stage on main stem	Prior to emergence of 4 th tiller.
VOLUNTEER (TAME) OATS	3 to 6 leaf stage on main stem	Prior to emergence of 4 th tiller.
GREEN FOXTAIL AND YELLOW FOXTAIL (wild millet, pigeon grass)	1 to 5 leaf stage on main stem	For optimum control apply prior to emergence of the 3 rd tiller and while foxtail is actively growing.
BARNYARD GRASS	1 to 5 leaf stage on main stem	For optimum control apply before tillering, and while barnyard grass is actively growing.
PERSIAN DARNEL	1 to 5 leaf stage on main stem	For optimum control apply before tillering, and while Persian darnel is actively growing.
VOLUNTEER CANARY SEED	1 to 6 leaf stage on main stem	Prior to emergence of 4 th tiller.
SPRING WHEAT AND DURUM WHEAT	Prior to emergence of 4 th tiller	When tank-mixing with a broadleaf herbicide, always refer to the label of the broadleaf partner prior to use.

- For optimum results, apply FOAX HERBICIDE to actively growing weeds. An early application will maximize crop yields by reducing weed competition. Weeds emerging after application of FOAX HERBICIDE will not be controlled.
- Weed control following application of FOAX HERBICIDE alone, or in combination with broadleaf weed herbicides, can be reduced or delayed under stress conditions such as drought, heat, insufficient fertility, flooding or prolonged cool temperatures. Grass escapes or re-tillering may occur if application is made during prolonged stress conditions. Optimum weed control will be obtained if application of FOAX HERBICIDE is delayed until the stress conditions have ended and weeds are once again actively growing.
- FOAX HERBICIDE alone can be used 30 minutes before rainfall.
- Do not apply to crop that is stressed by conditions such as frost, low fertility, drought, flooding, disease or insect damage as crop injury may result.

RATE OF USE FOR GROUND APPLICATION:

Apply the recommended rate of FOAX HERBICIDE and the recommended rate of an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant in a minimum of 50 to 100 L of water per hectare.

<p>To control:</p> <p>WILD OATS VOLUNTEER (TAME) OATS GREEN FOXTAIL YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER CANARY SEED</p>	<p>To control:</p> <p>WILD OATS VOLUNTEER (TAME) OATS GREEN FOXTAIL YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER CANARY SEED PERSIAN DARNEL</p>
<p>Rates for use with 50 L/ha water</p>	
<p>Apply:</p> <p>230 mL/ha of FOAX HERBICIDE + 400 mL/ha of (SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 50 L/ha of water (0.8% volume/volume)</p>	<p>Apply:</p> <p>290 mL/ha of FOAX HERBICIDE + 500 mL/ha of (SCORE or ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 50 L/ha of water (1.0% volume/volume)</p>
<p>Rates for use with 100 L/ha water</p>	
<p>Apply:</p> <p>230 mL/ha of FOAX HERBICIDE + 800 mL/ha of SCORE, ASSIST CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 100 L/ha of water (0.8% volume/volume)</p>	<p>Apply:</p> <p>290 mL/ha of FOAX HERBICIDE + 1 L/ha of SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 100 L/ha of water (1.0% volume/volume)</p>

NOTE: Always use an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with FOAX HERBICIDE.

RATE OF USE FOR AERIAL APPLICATION:

Apply the recommended rate of FOAX HERBICIDE and the recommended rate of an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant in a minimum of 30 L of water per hectare according to the following table:

To Control: WILD OATS	To Control: WILD OATS GREEN FOXTAIL YELLOW FOXTAIL PERSIAN DARNEL
Apply: 230 mL/ha of FOAX HERBICIDE + 240 mL/ha of SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 30 L/ha of water (0.8% volume/volume)	Apply: 290 mL/ha of FOAX HERBICIDE + 300 mL/ha of SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 30 L/ha of water (1.0% volume/volume)

NOTE: Always use adjuvants of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with FOAX HERBICIDE.

TANK MIXES of FOAX HERBICIDE WITH BROADLEAF WEED HERBICIDES – GROUND APPLICATION:

CROP: SPRING and DURUM WHEAT

TANK MIXES WITH BROADLEAF WEED HERBICIDES, IN SPRING WHEAT and DURUM WHEAT:

For broad spectrum control of wild oats, green foxtail and broadleaf weeds, FOAX HERBICIDE can be tank-mixed with broadleaf herbicides as described in the following tables. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, recropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions and follow the more restrictive label. When tank-mixing always add the broadleaf herbicide(s) to the spray tank first; followed by FOAX HERBICIDE, with SCORE or ASSIST, CROPOIL 83/17 ADJUVANT, or FOAX Adjuvant added last. For the appropriate rate of FOAX HERBICIDE with SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant, refer to the 'Rate of Use' section of the label.

Tank-Mix Partner	Product Rates	Crop Stage ¹
Dyvel [®]	1.25 L/ha	2 to 5 leaf
Refine Extra ^{® 2}	20 g/ha	2 leaf to flag leaf
Buctril [®] M	1.0 L/ha	2 leaf to flag leaf
Estaprop [®]	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Turboprop [®] 600	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Dichlorprop [®] -D	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Lontrel 360 EC tank mixed with MCPA Ester (assume 500 series)	280 to 420 mL/ha tank mixed with 1.1 L/ha	3 leaf to flag leaf
Curtail [™] M	2.0 L/ha	3 leaf to just before flag leaf
Thumper [®] EC	1.0 L/ha	2 leaf to early flag leaf
2,4-D Amine (assume 500 series) ³	840 mL to 1.1 L/ha	3 leaf to flag leaf
MCPA Amine (assume 500 series) ³	840 mL to 1.1 L/ha	3 leaf to flag leaf
MCPA Ester (assume 500 series)	840 mL to 1.1 L/ha	3 leaf to flag leaf
Pardner [®]	1.0 L/ha	2 leaf to flag leaf
Ally ^{® 2}	7.5 g/ha	2 leaf to flag leaf
Attain [®] Herbicide Tank Mix	600 mL/ha of Attain A + 1.0 L/ha of Attain B	4 leaf to flag leaf

¹ Always consult the label of the broadleaf herbicide prior to use.

² Addition of surfactants other than Score, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant is not required.

³ A reduction in control of green foxtail and wild oats may be observed when FOAX HERBICIDE is tank mixed with 2,4-D Amine and MCPA Amine.

Temporary crop injury may occur with tank-mixes under extreme weather conditions or when the crop is suffering from stress due to inadequate or abnormally high moisture level or extreme temperatures.

Do not tank-mix with any chemical additives, pesticides, or fertilizers that are not recommended on this label.

TANK MIXES OF FOAX HERBICIDE WITH BROADLEAF WEED HERBICIDES - AERIAL APPLICATION:

CROP: SPRING WHEAT and DURUM WHEAT

For broad spectrum control of wild oats, green foxtail and broadleaf weeds, FOAX HERBICIDE can be tank-mixed with Buctril M. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, recropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions and follow the more restrictive label. Use in a minimum of 30L of water per hectare.

Tank-mixes of FOAX HERBICIDE with broadleaf weed herbicides - Aerial application: When tank-mixing, always add the broadleaf herbicide (Buctril M) to the spray tank first; followed by FOAX HERBICIDE, with an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant added last. For the appropriate rate of FOAX HERBICIDE with an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant refer to the 'Rate of Use for Aerial Application' section of the label.		
Tank-Mix Partner	Product Rates	Crop Stage:

Buctril M	1.0 L/ha	2 leaf to flag leaf
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¹Always consult the label of the broadleaf partner prior to use.

BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:	
		Aquatic Habitat	Terrestrial habitat
Field sprayer*	Spring wheat and durum wheat	15	0
Aerial	Spring wheat and durum wheat	72	76

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING INSTRUCTIONS - GROUND APPLICATION:

1. Clean spray tank and half fill with clean water. Start agitation or bypass system.
2. If a broadleaf herbicide, insecticide or fungicide is to be used, add the product **FIRST** prior to adding FOAX HERBICIDE and agitate for 2-3 minutes.
3. Add correct amount of FOAX HERBICIDE.
4. Agitate for 2-3 minutes.
5. Add correct amount of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant.
6. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
7. After any break in spraying operations, agitate thoroughly before spraying again.
- 8. Use the spray suspension as soon as it is prepared.**
9. If an oil film starts to build up in the tank, drain tank and then clean with a detergent.

SPRAYING INSTRUCTIONS - GROUND APPLICATION:

1. FOAX HERBICIDE can be applied by ground or air. For aerial application instructions, refer to the section entitled "SPRAYING INSTRUCTIONS - AERIAL APPLICATION" which follows this section.

2. Water Volume: 50 to 100 litres per hectare when applied alone and a minimum of 100L/ha when tank-mixed with broadleaf herbicides
3. Spray Nozzles: 80° or 110° flat fan stainless steel nozzles are recommended for optimal spray coverage. Application of the spray mixture at a 45° angle in the direction of travel will result in improved spray coverage. Use 50 mesh nozzle screens. Do not use flood type nozzles, controlled droplet application equipment, spray foils or hollow cone nozzles.
4. Pressure: 275-310 kPa.
5. Apply uniformly at 6-8 km/hr and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from an over application.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

MIXING INSTRUCTIONS - AERIAL APPLICATION:

1. Fill the mixing tank 1/2 full with clean water. Start gentle agitation.
2. If a broadleaf herbicide is to be used, add the product FIRST prior to adding FOAX HERBICIDE and agitate for 2-3 minutes then add correct amount of FOAX HERBICIDE.
3. Agitate for 2-3 minutes.
4. Add correct amount of an adjuvant of either Score, Assist, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant.
5. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
6. Fill aircraft spray tank and maintain gentle agitation while spraying.
7. After any break in spraying operations, agitate thoroughly before spraying again. Do not let contents stand without agitation.
- 8. Use the spray suspension as soon as it is prepared.**
9. If an oil film starts to build up in the tank, drain tank and then clean with a detergent.

SPRAYING INSTRUCTIONS - AERIAL APPLICATION:

1. FOAX HERBICIDE can be applied by ground or by air. For ground application instructions, refer to the section entitled "SPRAYING INSTRUCTIONS - GROUND APPLICATION" which precedes this section.
2. Water Volume - Aerial application: Minimum of 30 litres per hectare when applied alone or when tank mixed with Buctril M.
3. Ensure uniform application. To avoid uneven or overlapped application, use appropriate marking devices. Do not use human flaggers.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification, with a volume medium diameter (VMD) greater than 350 microns. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotor-span.

SPRAYER CLEAN-UP:

1. Thoroughly clean application equipment immediately after spraying. Ensure that all traces of the product are removed. The following recommendations are provided:
2. Drain and flush tank walls, boom and all hoses for ten minutes with clean water. Do not

- clean the sprayer near desirable vegetation, wells, or other water sources.
3. Remove the nozzles and screens and wash separately.
 4. Dispose of all rinsings in accordance with provincial regulations.
 5. If a broadleaf tank-mix partner is used, always check tank-mix partner label for any additional clean up procedures.

Resistance-Management Recommendations

For resistance management, FOAX HERBICIDE is a Group 1 herbicide. Any weed population may contain or develop plants naturally resistant to FOAX HERBICIDE and other Group 1 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of FOAX HERBICIDE or other Group 1 herbicides with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted.

Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.

Monitor treated weed populations for resistance development.

Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact the company Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or at www.fbn.com.

NOTE TO USER:

READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the use described below were developed by persons other than Farmer's Business Network Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Farmer's Business Network Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Farmer's Business Network Canada Inc. harmless, from any claims based on efficacy and/or phytotoxicity in connection with the use described below.

DIRECTIONS FOR USE IN THE OKANAGAN AND CRESTON FLATS REGION OF BC:

FOAX HERBICIDE can be used for the control of wild oats, green foxtail and yellow foxtail in spring wheat and durum wheat in the Okanagan and Creston Flats Regions of British Columbia. For information on crop and weed stages, rates of application, mixing and spraying instructions and precautions see the appropriate sections elsewhere on this label.

Product names marked ® or TM are registered trademarks of their respective companies.

GROUP	4	HERBICIDE
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CLEVER® Dry Flowable Herbicide

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass and suppression of annual and perennial sow-thistle in spring and durum wheat, spring barley, canary seed, canola, **Clearfield** canola quality *Brassica juncea*, and tame mustard (brown and oriental).

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENT: Quinclorac..... 75% DF

REGISTRATION NO. 31365 PEST CONTROL PRODUCTS ACT

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT, CALL
COLLECT DAY OR NIGHT 1-613-966-6666**

**CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta Canada
T1V 1M7

1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg – 10 kg

GENERAL INFORMATION

CLEVER DF Herbicide is a dry flowable herbicide for selective post-emergence control of green foxtail (including Group 1 and Group 3 resistant biotypes), volunteer flax, cleavers, and barnyard grass in hard red spring, Canadian prairie spring, durum, Canada Western extra strong wheats, spring barley and canary seed, canola (*Brassica napus* – all varieties, including conventional, **Clearfield**®, LibertyLink® and Roundup Ready®), **Clearfield** canola quality *Brassica juncea* (e.g. canola quality *Brassica juncea* varieties with the **Clearfield** trait) and brown and oriental tame mustard.

CLEVER DF Herbicide is a herbicide with mainly systemic action. Uptake into the plant occurs through both the foliage and root system. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in inconsistent control of weeds growing underneath.

Visual symptoms of weed control of **CLEVER DF Herbicide** may take up to two weeks following application to develop. These symptoms include initial twisting to stunting, reddening and chlorosis about 14 days followed by necrosis and death about 21 days after application. Even though **CLEVER DF Herbicide** symptoms may take some time to develop, competition from the weeds treated with **CLEVER DF Herbicide** is eliminated soon after application.

DIRECTIONS FOR USE

Application Rate and Timing for Wheat, Spring Barley and Canary Seed

DO NOT APPLY BY AIR.

Apply **CLEVER DF Herbicide** at 135-165 g/ha when weeds are small and actively growing. **CLEVER DF Herbicide** will control the weeds at the timing detailed in **Table 1**. **CLEVER DF Herbicide** can be applied to wheat, spring barley and canary seed at the maximum application rates and timing detailed in **Table 1**.

Use the 135 g/ha rate ONLY for control of volunteer flax, barnyard grass, cleavers, lighter infestations of green foxtail and suppression of annual and perennial sow-thistle. Use the higher rate of 165 g/ha for control of heavier infestations of green foxtail. (Do not use the 165 g/ha rate on barley.) **Use only the 135 g/ha rate when applying CLEVER DR Herbicide to spring barley.**

Improved cleavers control in canola may be accomplished using a rate of 62 g/ha when tank mixed with Liberty 150 SN Herbicide at a rate of 3.33 L/ha on Liberty Link Canola, or with glyphosate products (360 g/L acid equivalent (ae) isopropylamine salt formulations or 540 g ae/L potassium salt formulations) at a rate of 667 g ae/ha on Roundup Ready Canola. All glyphosate products must be registered for post-emergent use on glyphosate tolerant canola varieties. Application should be made from the 2 to 6 leaf stage of the canola crop when cleavers are between the cotyledon to 3 whorls stage.

DO NOT apply **CLEVER DF Herbicide** to any field more often than every second year. This practice must be respected in order to avoid potential injury to future rotational crops, to minimize the potential for carryover and accumulation of soil residues, and to reduce the selection pressure which could contribute to the development of resistant biotypes.

Early treatment of weeds with **CLEVER DF Herbicide** is important to maximize crop yield potential through elimination of early weed competition. Some initial crop injury may be observed after application, but this is usually outgrown and should not affect crop yield.

Crop	Use Rate (g/ha)	Preharvest Interval (days)
Canola ¹ , Clearfield canola quality <i>Brassica juncea</i> , and tame mustard (brown and oriental)	135	60
Wheat (spring and Durum) and canary seed	135-165	77
Spring barley	135	80

¹*Brassica napus* – all varieties, including conventional, **Clearfield**, LibertyLink and Roundup Ready.

TABLE 1: WEED AND CROP APPLICATION TIMING TABLE

WEED	TRUE LEAF RANGE
Green foxtail	1 - 5 leaf (max 2 tillers)
Volunteer flax	1 - 8 cm.
Cleavers	1 - 3 whorls
Barnyard grass	1 - 5 leaf
Annual sow-thistle*	2 – 6 leaf
Perennial sow-thistle*	2 – 6 leaf
CROP	
Spring barley**	1 – 4 leaf (prior to tillering)
Wheat (spring and durum)	1 - 5 leaf
Canola ¹	2 - 6 leaf
Canary seed***	3 – 5 leaf
Clearfield canola quality <i>Brassica juncea</i>	2 - 6 leaf
Brown and oriental tame mustard	2 - 6 leaf

*Suppression only.

Maximum rate for barley is 135 g/ha. To avoid crop injury, apply **CLEVER DF Herbicide before spring barley tillers.

***Not to be used for human consumption or fed to livestock.

¹*Brassica napus* – all varieties, including conventional, Clearfield, LibertyLink and Roundup Ready.

SPRAYING INSTRUCTIONS

Ground Application

Use sprayers equipped with standard flat fan pesticide nozzles with a spray volume of 100 L/ha at a constant pressure of 275-425 kPa. Tilt spray nozzles 45 degrees forward to ensure better coverage. The use of 50 mesh strainers and screens is recommended.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) fine classification. Boom height must be 60 cm or less above the crop or ground.

ADDITIVES

Always use **MERGE** adjuvant at 1.0% v/v for optimum performance of **CLEVER DF Herbicide**.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

TANK MIX COMBINATIONS (BARLEY, WHEAT AND CANARY SEED APPLICATIONS ONLY):

For the appropriate rate of **CLEVER DF Herbicide**, refer to the Application Rate and Timing section of the label.

Broadleaf Weed Control

Although **CLEVER DF Herbicide** provides control of several broadleaf weeds, a tank mix with a broadleaf compound is required to give broad spectrum broadleaf weed control in wheat.

For additional control of broadleaf weeds in barley and wheat, **CLEVER DF Herbicide** can be tank mixed with any of the broadleaf herbicides listed in **Table 2**. When tank mixing **CLEVER DF Herbicide** with these broadleaf herbicides, a slight reduction in control of green foxtail may be observed. The level of green foxtail control may be improved by using the 165 g/ha rate of **CLEVER DF Herbicide** in the tank mixture for wheat only.

Refer to **Table 2** for appropriate use rates and timing of crop applications. Always refer to the labels of all tank mix partners and observe the most restrictive application directions, restrictions, precautions and personal protective equipment of all tank mix partners.

TABLE 2: TANK MIX OPTIONS FOR CLEVER DF HERBICIDE ON BARLEY, WHEAT, AND CANARY SEED

Crop	CLEVER Rate (g/ha)	Tank Mix Partner	Rate	Crop Stage	Weeds Controlled
Barley	135	MCPA Amine (assume 500 series)	1.1 L/ha	3-4 leaf	CLEVER DF Herbicide – see Table 1. Broadleaf weeds listed on MCPA Amine label.
		MCPA Ester (assume 500 series)	1.1 L/ha	3-4 leaf	CLEVER DF Herbicide – see Table 1. Broadleaf weeds listed on MCPA Ester label
		Buctril M	1.0 L/ha	2-4 leaf	CLEVER DF Herbicide – see Table 1. Broadleaf weeds listed on Buctril M label
		Refine Extra¹	20 g/ha	2-4 leaf	CLEVER DF Herbicide – see Table 1. Broadleaf weeds listed on Refine Extra label
Wheat (spring and durum)	135-165	Buctril M	1.0 L/ha	2-5 leaf	CLEVER DF Herbicide - see Table 1. Broadleaf weeds listed on Buctril M label.
		2,4-D Amine (assume 500)	0.840-1.1 L/ha	3-5 leaf	CLEVER DF Herbicide - see Table 1.

		series)			Broadleaf weeds listed on 2,4-D Amine label.
		2,4-D Ester (assume 500 series)	0.840-1.1 L/ha	4-5 leaf	CLEVER DF Herbicide - see Table 1.
		MCPA Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	Broadleaf weeds listed on 2,4-D Ester label.
		MCPA Ester (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	CLEVER DF Herbicide - see Table 1.
		Refine Extra ¹	20 g/ha	2-5 leaf	Broadleaf weeds listed on MCPA Amine label.
		Express Pack ¹ (Express + 2,4-D)	10 g/ha + 0.625 L/ha	3-5 leaf	CLEVER DF Herbicide - see Table 1.
Canary seed ²	135	Buctril M	1.0 L/ha	3-5 leaf	Broadleaf weeds listed on MCPA Ester label.
					CLEVER DF Herbicide - see Table 1.
					Broadleaf weeds listed on Refine Extra label.
					CLEVER DF Herbicide - see Table 1.
					Broadleaf weeds listed on Express Pack label.
					CLEVER DF Herbicide - see Table 1.
					Broadleaf weeds listed on Buctril M label.

¹Addition of surfactants other than Merge adjuvant is not required

²Avoid over application.

Do not delay spraying broadleaf weeds if grassy weeds are not in the correct stage for treatment. If green foxtail, wild oats and broadleaf weeds are not in the correct stages for treatment, apply separate applications of each herbicide timed to control the required spectrum of weeds. Use **MERGE** adjuvant only with all tank mixtures.

RECROPPING

Due to the residual activity of **CLEVER DF Herbicide** in the soil, land treated with **CLEVER DF Herbicide** cannot be rotated to crops other than specified in **Table 3**. To avoid injury to rotational crops, the minimum recropping intervals in **Table 3** must be followed.

TABLE 3: MINIMUM RECROPPING INTERVALS

CROP	MINIMUM RECROPPING INTERVAL (Months)	NOTES
Wheat* (spring, durum) Spring barley* Canola*	0 0 0	These crops can be re-planted in the same season as CLEVER DF Herbicide applications.
Field peas Sunflowers	10 10	These crops and the crops listed above can be planted the year following application of CLEVER DF Herbicide .

Oats	12	These crops and the crops listed above can be planted the year following application of CLEVER DF Herbicide .
Flax Lentils	10 10	These crops and the crops listed above can be planted the year following application of CLEVER DF Herbicide .

*In the event of crop failure, only canola, spring or durum wheat or spring barley may be reseeded in fields treated with **CLEVER DF Herbicide**.

CLEVER DF Herbicide should not be used on land where potatoes or vegetables are part of the rotation.

The company recommends that a field bioassay (a test strip grown to maturity) be conducted the year before growing any crops other than those listed in **Table 3**.

On lighter soils with low organic matter or under dry conditions, some crop injury may occur particularly in flax and lentils but will not reduce yield. Under these conditions, the minimum recropping interval for flax and lentils should be extended by 12 months.

Refer to the broadleaf or AVENGE 200-C Herbicide label for specific additional recropping restrictions.

RESTRICTIONS AND LIMITATIONS

1. Do not apply **CLEVER DF Herbicide** when weather conditions may cause spray drift from treated areas to adjacent crops. Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes and vegetables will be injured by spray drift of **CLEVER DF Herbicide**.
2. Do not apply **CLEVER DF Herbicide** to wheat, spring barley and canary seed under seeded to forages.
3. Do not apply **CLEVER DF Herbicide** to wheat, spring barley, canary seed, canola, **Clearfield** canola quality *Brassica juncea* or tame mustard that has been subjected to stress from conditions such as frost, hail damage, flooding, drought, extended cold period, etc.
4. Rainfall within 6 hours after application may reduce effectiveness of spray.
5. When **CLEVER DF Herbicide** is applied beyond the recommended growth stages, limited crop injury and/or unsatisfactory weed control may result.
6. Cool weather conditions or drought will delay herbicide activity and if prolonged, may result in poor weed control.
7. Do not use **CLEVER DF Herbicide** with additives, pesticides or fertilizers not specifically recommended on this label.
8. Allow 4 days between application of **CLEVER DF Herbicide** and any other chemical not recommended as a tank mix combination on this label.
9. **CLEVER DF Herbicide** must not be applied within 77 days of harvest of canary seed and wheat, within 60 days of harvest of canola and within 80 days of harvest of spring barley.
10. Spring barley treated with **CLEVER DF Herbicide** is NOT TO BE USED FOR HUMAN CONSUMPTION.

11. Canary seed treated with **CLEVER DF Herbicide** is NOT TO BE USED FOR HUMAN CONSUMPTION OR FED TO LIVESTOCK.
12. Apply using ground equipment only. DO NOT APPLY BY AIR.
13. Overspray or drift into important wildlife habitats such as shelterbelts, wetlands, woodlots, vegetated ditch, ponds and lake banks and other cover on the edges of fields should be avoided. A 10-metre buffer zone should be observed adjacent to aquatic habitats such as streams, ponds, rivers and lakes and to areas that drain into these habitats. When a tank mixture is used, consult the label of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.
14. Do not graze the treated crops or cut for hay within 77 days of application.
15. Grain and meal from treated canola can be fed to livestock. DO NOT graze or feed other portions of the treated canola to livestock.
16. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats.

Buffer Zones for the Protection of Terrestrial Habitats from Spray Drift of Quinclorac

Method of application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitats
Field Sprayer	Durum and spring wheat, canary seed	4
	Spring barley Canola - Brassica napus (conventional, Clearfield, LibertyLink and Roundup Ready varieties), Canola - Brassica juncea (conventional, Clearfield, LibertyLink and Roundup Ready varieties) and Tame mustard (brown and oriental)	3

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING

1. Thoroughly clean the sprayer prior to use. For appropriate cleaning instructions, refer to the label of the product sprayed previous to application of **CLEVER DF Herbicide**.
2. Fill the clean spray tank half full with clean water. Start agitation or by-pass system. Agitation should be running during the entire mixing procedure.
3. Add the correct amount of **CLEVER DF Herbicide** and agitate 2 to 3 minutes.

4. Add the correct amount of broadleaf herbicide, followed by **AVENGE 200-C** herbicide, if required. When mixing **CLEVER DF Herbicide** with **EXPRESS PACK**, **EXPRESS** herbicide must be completely in suspension in the spray tank prior to adding **2,4-D** herbicide.

NOTE: On repeat tank loads of either **EXPRESS PACK** or **REFINE EXTRA** herbicide, prepare an **EXPRESS**/water or **REFINE**/water slurry in a separate container with clean water before adding to the spray tank.

5. Add the correct amount of **MERGE** adjuvant and agitate 2 to 3 minutes.
6. Add remainder of water to the spray tank and maintain sufficient agitation during mixing and spraying to ensure a uniform spray mixture.
7. For sprayer clean-up, refer to the sprayer clean-up section.
8. Consult the broadleaf or **AVENGE 200-C** herbicide label for additional application instructions, use precautions and recropping information. **SPRAYER CLEAN-UP**

Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes, tomatoes and vegetables are particularly sensitive to **CLEVER DF Herbicide**. To avoid injury to subsequent crops other than wheat, the sprayer should be thoroughly cleaned immediately after use and prior to spraying other crops by performing the following steps:

1. Following spray application, drain any remaining spray solution, then flush the tank, boom and hoses with clean water until any visible residues are removed. (Repeat step 1, if necessary.) **DO NOT CLEAN SPRAYER NEAR DESIRABLE VEGETATION OR NEAR WELL OR WATER SOURCE.**
2. Completely fill spray tank with clean water while adding 1 litre of household ammonia (containing 3% ammonia) per 100 litres of water or a commercially licensed tank cleaner such as **FINNISH®**. Reduce the amount of ammonia added proportionally if higher concentrations (%) of ammonia are used. Flush the solution through the boom and nozzles and then add more water to completely refill the tank. Agitate the solution for at least 15 minutes and then flush the boom and nozzles until the spray tank is empty.
3. Remove the nozzles and screens and clean separately in a bucket containing a cleaning agent and water.
4. Repeat step 2.
5. Thoroughly rinse the tank with clean water and flush the water through the boom.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **CLEVER DF Herbicide** is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to **CLEVER DF Herbicide** and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **CLEVER DF herbicide** or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partners.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible, by an alternative herbicide from a different group.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

PRECAUTIONS

- 1 **KEEP OUT OF REACH OF CHILDREN.**
- 2 May irritate the skin. Avoid contact with the skin.
- 3 Potential skin sensitizer.
- 4 Wash thoroughly after handling and before eating, drinking or smoking.
- 5 Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
- 6 If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
- 7 Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
- 8 DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- 9 Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
- 10 Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

- 1 Store in original, tightly-closed container.
- 2 Do not ship or store near food, feed, seed or fertilizers.
- 3 Store in cool, dry, locked, well-ventilated area without floor drain.
- 4 Herbicides should be shipped or stored separately from other pesticides to avoid cross-

contamination.

- 5 Freezing will not harm **CLEVER DF Herbicide**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

- 1 Follow provincial instruction for any required cleaning of the container prior to its disposal.
- 2 Make the empty container unsuitable for further use.
- 3 Dispose of the container in accordance with provincial requirements.
- 4 For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

MERGE® is a registered trademark of BASF Canada Inc.

®All other products listed are registered trademarks of their respective companies.

CLEVER® Dry Flowable Herbicide

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass and suppression of annual and perennial sow-thistle in spring and durum wheat, spring barley and canary seed, canola, **Clearfield** canola quality *Brassica juncea*, and tame mustard (brown and oriental).

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENT: Quinclorac..... 75% DF

REGISTRATION NO. 31365 PEST CONTROL PRODUCTS ACT

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL COLLECT DAY OR NIGHT
1-613-966-6666**

**CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg

PRECAUTIONS

- 1 **KEEP OUT OF REACH OF CHILDREN.**
- 2 May irritate the skin. Avoid contact with the skin.
- 3 Potential skin sensitizer.
- 4 Wash thoroughly after handling and before eating, drinking or smoking.
- 5 Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
- 6 If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
- 7 Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
- 8 DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- 9 Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
- 10 Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
- 11 **As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.**

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

- 1 Store in original, tightly-closed container.
- 2 Do not ship or store near food, feed, seed or fertilizers.
- 3 Store in cool, dry, locked, well-ventilated area without floor drain.
- 4 Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
- 5 Freezing will not harm **CLEVER DF Herbicide**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

- 1 Follow provincial instruction for any required cleaning of the container prior to its disposal.
- 2 Make the empty container unsuitable for further use.
- 3 Dispose of the container in accordance with provincial requirements.
- 4 For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the

directions on the label.

Container Label

GROUP	9	HERBICIDE
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SHARDA GLYPHOSATE 360

HERBICIDE

SOLUTION

AGRICULTURAL and INDUSTRIAL



CAUTION

IRRITANT

WATER SOLUBLE HERBICIDE FOR NON-SELECTIVE WEED CONTROL

REGISTRATION NO. 31493 PEST CONTROL PRODUCTS ACT.

ACTIVE INGREDIENT: Glyphosate (present as isopropylamine salt)...360 g/L

READ THE LABEL BEFORE USING.

NET CONTENTS 4-1050 Litres, Bulk

2nd Floor, Prime Business Park,
Dashrathlal Joshi Road,
Vile Parle (West)
Mumbai 400056 India

Canadian Agent:
Sharda Cropchem Limited
601 – 402 – 21st Street East
Saskatoon SK S7K 0C3
1-888-931-2530

IN CASE OF SPILLS, POISONING OR FIRE. TELEPHONE EMERGENCY RESPONSE
NUMBER 1 616 996-6666 (or *666 on a cell phone) CANUTEC (24 HOURS A DAY).

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

MAY CAUSE EYE IRRITATION.

HARMFUL IF SWALLOWED.

Avoid contact with eyes or prolonged contact with skin.

For good hygiene practice, wear a long-sleeved shirt, long pants and chemical resistant gloves during mixing, loading, clean-up or repair activities.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fibreglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

STORAGE

Avoid contamination of seed, feed, and foodstuffs. Soak up small amounts of spill with absorbent clays.

DISPOSAL

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

SHARDA GLYPHOSATE 360

HERBICIDE

SOLUTION

AGRICULTURAL and INDUSTRIAL

CAUTION



IRRITANT

WATER SOLUBLE HERBICIDE FOR NON-SELECTIVE WEED CONTROL

REGISTRATION NO. 31493 PEST CONTROL PRODUCTS ACT.

ACTIVE INGREDIENT: Glyphosate (present as isopropylamine salt)...360 g/L

READ THE LABEL BEFORE USING.

NET CONTENTS 4-1050 Litres, Bulk

Sharda Cropchem Limited
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NUMBER 1 616 996-6666 (or *666 on a cell phone) CANUTEC (24 HOURS A DAY).

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SHARDA GLYPHOSATE 360

1.0 PRODUCT DESCRIPTION

Water soluble herbicide for non-selective weed control in CROPLAND SYSTEMS AND IN NON-CROPLAND AREAS.

CROPLAND USES INCLUDE:

In cropping systems before planting of all crops; in minimum tillage systems; post emergent in glyphosate tolerant corn, soybean and canola i.e. varieties with the Roundup Ready™ gene; preharvest applications in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), peas, lentils, dry beans, soybeans and forages; in pasture renovation; in forage, legume and grass establishments; in tree crops including apple, pear, cherry, plum, peach, apricot, filbert, hazelnut, walnut, chestnut, Japanese Heartnut; in grapes, cranberries, blueberries and strawberry; in asparagus; in North American ginseng; in tree plantings; and grasses for seed production.

NON-CROPLAND USES INCLUDE:

Industrial; recreational, rights-of-way, and public areas; turf grass renovation.

Not for relabelling or repackaging.

Roundup Ready is a registered trademark

2.0 EMERGENCY NUMBERS

IN CASE OF SPILLS, POISONING OR FIRE. TELEPHONE EMERGENCY RESPONSE NUMBER 1 616 996-6666 - CANUTEC (24 HOURS A DAY).

Read NOTICE before buying or using. If notice terms are not acceptable, return at once unopened.

2.1 INFORMATION

For further information, contact your local Sharda Cropchem Limited representative, or call Sharda Cropchem Limited 1-888-931-2530.

3.0 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

MAY CAUSE EYE IRRITATION.

HARMFUL IF SWALLOWED.

Avoid contact with eyes or prolonged contact with skin.

For good hygiene practice, wear a long-sleeved shirt, long pants and chemical resistant gloves during mixing, loading, cleanup or repair activities.

3.1 FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

3.2 TOXICOLOGICAL INFORMATION

Treat symptomatically.

3.3 ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative

strip between the treated area and the edge of the water body.

3.4 PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fibreglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

3.5 STORAGE

Avoid contamination of seed, feed, and foodstuffs.
Soak up small amounts of spill with absorbent clays.

3.6 DISPOSAL

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

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REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

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NOTICE

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

DIRECTIONS FOR USE

4.0 GENERAL INFORMATION

The restricted entry interval is 12 hours after application for all agricultural uses.

Do not apply this product using aerial spray equipment except under conditions as specified within this label.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

Observe buffer zones specified in Section 5.3

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

For tank mixtures, always follow the most restrictive label when applying.

SHARDA GLYPHOSATE 360, a water soluble liquid, mixes readily with water for application as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

This herbicide moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Delay application until vegetation has emerged to the stages described for control of such vegetation under the annual and perennial weed control sections (7.0 and 8.0) of this booklet to provide

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adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per hectare within the recommended range when weed growth is heavy or dense, or weeds are growing in an undisturbed (non-cultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This product does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, SHARDA GLYPHOSATE 360 is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to SHARDA GLYPHOSATE 360 and other Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of SHARDA GLYPHOSATE 360 or other Group 9 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision

fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

- For further information or to report suspected resistance, contact your Sharda Cropchem Limited representative, or call Sharda Cropchem Limited 1-888-931-2530.

5.0 MIXING AND APPLICATION

5.1 PRECAUTIONS

ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

AVOID DRIFT - EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS. Do not allow spray mist to drift since even minute quantities of spray can cause severe damage or destruction to nearby crops, plants or other areas on which treatment is not intended, or may cause other unintended consequences. Do not apply when winds are gusty or in excess of 8 kilometers per hour or when other conditions, including lesser wind velocities, will allow drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in fine particles (mist) which are more likely to drift.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

DO NOT USE IN GREENHOUSES. REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

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Clean sprayer and parts immediately after using this product by thoroughly flushing with water. Do not contaminate water sources by disposal of wastes or cleaning of equipment.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

NOTE: Use of this product in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

5.2 MIXING AND APPLICATION EQUIPMENT INFORMATION

MIXING

For ground or industrial type sprayers, fill the spray tank with one-half the required amount of water. Add the proper amount of herbicide see "**Weed Control**" sections of this booklet (7, 8) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent excessive foaming. Removing hose from tank immediately will avoid back siphoning into water source. Use of mechanical agitators may cause excessive foaming. Bypass lines should terminate at the bottom of the tank.

For use in knapsack sprayers, it is suggested that the proper amount of this herbicide be mixed with water in a larger container. Fill sprayer with the mixed solution.

APPLICATION EQUIPMENT

BOOM EQUIPMENT

For control of perennial weeds and woody brush and trees listed on this booklet using conventional boom equipment- Apply this product in 50 to 300 litres of clean water per hectare as a broadcast spray using no more than 275 kPa pressure. See "**Weed Control**" sections of this booklet (7,8) for rates to control specific weeds.

For control of annual weeds listed on this booklet using conventional boom equipment--Apply this product in 50 to 100 litres of clean water per hectare as a broadcast spray, except as otherwise stated on this label using no more than 275 kPa pressure. See "**Weed Control**" sections of this booklet (7,8) for rates to control specific weeds.

HAND HELD AND HIGH VOLUME EQUIPMENT (use coarse sprays only)

For control of weeds and woody brush and trees listed in the "Weed Controlled" section "6.0" of this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements--Unless otherwise specified, make a 1 percent solution of this product in water (1 litre of this product in 100 litres of water) and apply to foliage of vegetation to be controlled. For best results, use a 2 percent solution (2 litres of this product in 100 litres of water) on harder to control perennials such as field bindweed, hemp dog-bane, milkweed and Canada thistle.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of runoff. Hand gun applications should be properly directed to avoid spraying desirable plants.

SELECTIVE EQUIPMENT

Selective equipment such as **WIPER** and **ROLLER** applicators can be used for weed control in soy and dry beans, orchards, vineyards, cranberries, strawberries and non-crop areas. For information regarding use of this product with selective equipment, refer to "**Selective Equipment**" section of this label (9.12).

AERIAL EQUIPMENT

Aerial application can only be used for weed control in preharvest situations or industrial rights-of-way. Refer to sections 5.3, 9.9.2 and 10.2.2 for application information.

Directions for use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of a spotter plane is recommended.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of

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this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even target crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Sharda Cropchem Limited 1-888-931-2530 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume 30-100 litres per hectare.

5.3 BUFFER ZONES

- i) Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.
- ii) Aerial Application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.
- iii) Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.
- iv) Buffer Zones

Use of the following spray methods or equipment **DO NOT** require a buffer zone: Hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g., wind direction, low wind speed) and spray equipment (e.g., coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas, rangelands and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies).

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 Compared to Last Approved Label Sub. No. 2015-7190, 2016-01-26

Agricultural crop system and ground boom application method	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
		Aquatic habitats	Terrestrial habitats
Pre-seeding applications for rye and all other crops. Established pasture and summer fallow. Ginseng new garden	1	1	1
Ginseng - existing established garden, Canola - Roundup Ready hybrid for seed production	2	1	1
Filberts or hazelnut	4	1	1
Corn (glyphosate non-tolerant varieties including grain, silage and ornamental types), strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)	2	1	2
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), corn-sweet (glyphosate tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, chickpea, asparagus, corn (glyphosate tolerant varieties), forage grasses and legume including seed production	3	1	2
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)	4	1	2
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes	3	1	3
Agricultural crop system and airblast application method (including mist blower)			
Pasture	1	20	30
Turfgrass (Prior to establishment or renovation)	2	25	35
Non-cropland system and ground boom application method			
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	3*
Non-cropland system and airblast application method (including mist blower)			
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	30*

Agricultural crop system and aerial application method	Wing Type	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
			Aquatic habitats	Terrestrial habitats
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40
Non-cropland system and aerial application method				
Non-crop land and industrial uses: Rights-of-way areas only	Fixed wing	3	100	not required
	Rotary wing	3	60	

* Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements, roads, and training grounds and firing ranges on military bases.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency website.

6.0 WEEDS CONTROLLED

This product controls many annual and perennial grasses, broadleaf weeds, and woody brush and trees when applied as recommended and under conditions described. For information on how to control specific weeds including herbicide rate refer to the "**Annual Weed Control**" and "**Perennial Weed Control**" sections of this label (7.1, 8.1, respectively). The following is a partial list of weeds controlled:

6.1 ANNUAL WEEDS

Annual Grasses

Barnyard Grass

Echinochloa crus-galli

Blue Grass (annual)

Poa annua

Crab Grass (large)

Digitaria sanguinalis

Crab Grass (smooth)

Digitaria ischaemum

Downy Brome Grass

Bromus tectorum

Fall Panicum

Panicum dichotomiflorum

Giant Foxtail

Setaria faberii

Green Foxtail

Setaria viridis

Persian Darnel

Lolium persicum

Volunteer Barley

Hordeum spp.

Volunteer Corn

Zea Mays

Volunteer Wheat

Triticum spp.

Wild Oats

Avena fatua

Wild Proso Millet

Panicum miliaceum

Yellow Foxtail

Setaria glauca

Other

Dodder

Cuscuta spp.

Annual Broadleaf Weeds

Chickweed

Stellaria media

Cleavers

Galium aparine

Cocklebur

Xanthium strumarium

Corn Spurry

Spergula arvensis

Cow Cockle

Saponaria vaccaria

Eastern Black Nightshade

Solanum ptycanthum

Fleabane (Canada)

Erigeron canadensis

Flixweed

Descurainia sophia

Green Smartweed

Polygonum scabrum

Hempnettle

Galeopsis tetrahit

Kochia

Kochia scoparia

Lady's-Thumb

Polygonum persicaria

Lamb's-Quarters (common)

Chenopodium album

Narrow-leaved Hawk's Beard

Crepis tectorum

Narrow-leaved Vetch

Vicia angustifolia

Night-flowering Catchfly

Silene noctiflora

Pennsylvania Smartweed

Polygonum pensylvanicum

Prickly Lettuce

Lactuca scariola

Ragweed (common)

Ambrosia artemisiifolia

Redroot Pigweed*Amaranthus retroflexus***Round-leaved Mallow***Malva pusilla***Russian Thistle***Salsola pestifer***Shepherd's Purse***Capsella bursa-pastoris***Smooth Pigweed***Amaranthus hybridus***Sowthistle (annual)***Sonchus oleraceus***Stinkweed***Thlaspi arvense***6.2 PERENNIAL WEEDS****Perennial Grasses / Sedges****Blue Grass (Canada)***Poa compressa***Blue Grass (Kentucky)***Poa pratensis***Brome Grass (smooth)***Bromus inermis***Cattail (common)***Typha latifolia***Foxtail Barley***Hordeum jubatum***Quackgrass***Agropyron repens***Wire-Stemmed Muhly***Muhlenbergia frondosa***Yellow Nutsedge***Cyperus esculentus***Storksbill***Erodium cicutarium***Velvetleaf***Abutilon theophrasti***Volunteer Canola (rapeseed)**

Brassica spp

Volunteer Flax*Linaria spp***Wild Buckwheat***Polygonum convolvulus***Wild Mustard***Sinapis arvensis***Wild Tomato***Solanum triflorum***Perennial Broadleaved Weeds****Alfalfa***Medicago spp.***Cottontop***Eriophorum chamissonis***Curled Dock***Rumex crispus***Dandelion***Taraxacum officinale***Field Bindweed***Convolvulus arvensis***Hemp Dogbane***Apocynum cannabinum***Hoary Cress***Cardaria draba***Knotweed (Japanese)***Polygonum cuspidatum***Milkweed (common)***Asclepias syriaca***Poison Ivy***Rhus radicans***Purple Loosestrife***Lythrum salicaria***Sow Thistle (perennial)***Sonchus arvensis***Thistle (Canada)***Cirsium arvense*

Toad Flax*Linaria vulgaris***Wormwood (Absinth)***Artemisia absinthium***6.3 Woody Brush and Trees****Alder***Alnus spp.***Birch***Betula spp.***Broadleaved meadowsweet***Spiraea latifolia***Rhododendron (Canadian)***Rhododendron**canadense***Cedar***Thuja spp.***Cherry***Prunus spp.***Douglas Fir***Pseudotsuga spp.***Hemlock***Tsuga spp.***Maple***Acer spp.***Mountain-fly****honeysuckle***Lonicera villosa***Pine***Pinus spp.***Poplar***Populus spp.***Raspberry / Salmonberry***Rubus spp.***Sheep laurel***Kalmia angustifolia***Snowberry (Western)***Symphoricarpos**occidentalis***Sweet fern***Comptonia peregrina***Willow***Salix spp.***Withrod***Viburnum cassinoides*

CROPLAND USES

ALWAYS READ PRECAUTIONARY STATEMENTS, GENERAL INFORMATION AND MIXING AND APPLICATION PRECAUTIONS (sections 3.0, 4.0 and 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

DO NOT APPLY BY AIR

7.0 ANNUAL WEED CONTROL

The following tables provide rates and specific application instructions for control of the annual weeds listed.

7.1 ANNUAL WEED CONTROL WITH SHARDA GLYPHOSATE 360.

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50 - 100 L/ha water)
0.75	weeds up to 8 cm in height	wild oats, green foxtail, volunteer barley, volunteer wheat non-glyphosate tolerant volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed	. For wild oats apply at 1 - 3 leaf stage . Add 350 mL of a surfactant registered for use such as Agral®90, Ag Surf®, or Companion™. . For heavy wild oat infestations use 1.0 L/ha rate.
1.0	weeds 8 cm to 15 cm in height	all annual grasses listed above all annual broad leaved weeds listed above plus flixweed* and kochia*	. Add 350 mL of surfactant registered for use as listed above. *Suppression only. Refer to higher rates of this table or tank mix table (section 7.2) for control options.
1.25-1.9	weeds up to 15 cm in height	all annual grasses listed above plus downy brome, giant foxtail, and persian darnel all annual broadleaved weeds listed above plus cleavers, lamb's quarters, redroot pigweed, hempnettle,	. No surfactant required . For tankmix weed control options see section 7.2 *DO NOT use these rates on plants greater than 8 cm in height ** for 3 - 4 leaf stage use 1.9 L/ha

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50 - 100 L/ha water)
		flixweed, russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, narrow-leaved hawk's beard***,	rate ***For weeds 8 cm to 15 cm in height use 1.9 L/ha rate
2.25	weeds up to 15 cm in height	all annual grasses listed above plus crab grass and annual blue grass. all annual broadleaved weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch	. For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).
3.5	weeds over 15 cm in height	all annual grasses and broadleaved weeds listed above	. For additional annual broadleaved weed control options refer to tank mix table (section 7.2).

Agral® is a registered trademark of Syngenta Crop Protection Canada Inc.

Ag Surf® is a registered trademark of Interprovincial Co-operatives Ltd.

Companion© is a trademark of Dow AgroSciences LLC.

NOTE: For spot treatment, 0.75 - 3.5 L/ha is approximately equivalent to 8 - 35 mL/100 m², respectively.

7.2 ANNUAL WEED CONTROL WITH SHARDA GLYPHOSATE 360 TANK MIXTURES

FOR SUMMERFALLOW & MINIMUM TILLAGE SYSTEMS

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
SHARDA GLYPHOSATE 360	0.75 – 1.0	Volunteer cereals, wild oats, green foxtail	This tank mix is registered for summerfallow use only . Weeds should be less than 15 cm tall and actively growing for best results.
+	+	Non-glyphosate tolerant volunteer canola (rapeseed), wild mustard, flixweed*, lamb's-	Use higher rate if weeds are beyond 8 cm in height.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
Banvel® Herbicide	0.29	quarters, lady's-thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	<p>* SHARDA GLYPHOSATE 360 applied at 1.0 L/ha rate only.</p> <p>** Suppression only. See other tank mixtures for control options.</p> <p>Add 350 mL/ha of surfactant – see list in section 7.3.</p>
SHARDA GLYPHOSATE 360 + Pardner®	0.75 – 1.0 + 1.25	<p>Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed, wild buckwheat*</p> <p>Redroot pigweed**, kochia**, wild oats**</p>	<p>This tank mix is registered only for use in summerfallow, and prior to wheat, oats and barley in minimum tillage systems. Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* Use SHARDA GLYPHOSATE 360 at 1.0 L/ha rate only for wild buckwheat control.</p> <p>** 1.0 L/ha rate, suppression only. See other tank mixtures for control options.</p> <p>Add 350 mL/ha of surfactant – see list in section 7.3.</p>
SHARDA GLYPHOSATE 360 + 2,4-D ^A	1.25 – 1.9 + 0.6 – 0.9 ⁴ or 1.2 – 1.5 ⁵	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, and Persian dandelion.</p> <p>Volunteer canola, (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia, lamb's-quarters,</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3-4 leaf stage use 1.9 L/ha rate.</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED◆	COMMENTS (Apply in 50-100 L/ha water)
		<p>hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***</p> <p>Volunteer Roundup Ready canola (1-4 leaf stage)⁴, bluebur⁴, burdock⁴, cocklebur⁴, common plantain⁴, daisy fleabane⁴, false flax⁴, false ragweed⁴, goat's beard⁴, mustards⁴ (except dog and tansy), prickly lettuce⁴, ragweeds⁴, Russian pigweed⁴, shepherd's purse⁴, stinging nettle⁴, sweet clover⁴, thyme-leaved spurge⁴, wild radish⁴, wild sunflower⁴</p> <p>Volunteer Roundup Ready canola (4-6 leaf stage)⁵, annual sow thistle⁵, common chickweed⁵, common purslane⁵, dog and tansy mustard⁵, oak-leaved goosefoot⁵, common groundsel⁵, hairy galinsoga⁵, hawkweed⁵, heal-all⁵, knotweed⁵, peppergrass⁵, pineapple weed⁵, prostrate pigweed⁵, purslane⁵, sheep sorrel⁵, green smartweed⁵, tumble pigweed⁵, velvetleaf⁵, volunteer canola (rapeseed)⁵</p>	<p>*** For weeds 8 cm to 15 cm in height use 1.9 L/ha rate.</p> <p>⁴ 2,4-D at 0.6 – 0.9 L/ha (280 – 420 g ai/ha).</p> <p>⁵ 2,4-D at 1.2 – 1.5 L/ha (560 – 700 g ai/ha).</p> <p>Use this tank mix prior to seeding or after seeding but before crop emergence in wheat, winter wheat, barley and rye.</p> <p>No surfactant required.</p>
SHARDA GLYPHOSA	0.75 – 1.0	Volunteer cereals, wild oats* and green foxtail*	This tank mix is registered for summerfallow use only. Weeds

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
TE 360 + 2,4-D ^B	+ 1.2	Volunteer canola (rapeseed), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia Lamb's-quarters**, Russian thistle**	should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * Use SHARDA GLYPHOSATE 360at 1.0 L/ha rate only for wild oat and green foxtail control. ** Suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant – see list in section 7.3.
SHARDA GLYPHOSA TE 360 + MCPA 500 g/L formulation, if another formulation is used, adjust rate accordingly	1.25 – 1.9 + 0.5 – 0.7 ¹ OR 0.5 – 1.0 ²	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, and Persian darnel. Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard*** Volunteer Roundup Ready canola (1-4 leaf stage) ^{1,2} Bluebur ³ , burdock ³ (before 4 leaf stage), false flax ³ , flixweed ³ , lamb's quarters ³ , mustards ³ (except dog and tansy), prickly lettuce ³ , ragweeds ³ , redroot	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3-4 leaf stage use 1.9 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.9 L/ha rate. ¹ MCPA amine at 0.5 – 0.7 L/ha (250-350 g ai/ha) prior to peas. ² MCPA at 0.5 – 1.0 L/ha (250-500 g ai/ha) prior to wheat, barley, oats, corn (field and sweet) MCPA rye and flax. ³ MCPA at 0.7 – 1.0 L/ha (350 – 500 g ai/ha) only.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
		pigweed ³ , Russian pigweed ³ , shepherd's purse ³ , stinkweed (field pennycress) ³ , vetch ³ , wild radish ³ , wild sunflower ³	Use this tank mix prior to seeding in wheat, barley, rye, oats, corn (field and sweet) MCPA flax, and field peas MCPA No surfactant required.
SHARDA GLYPHOSA TE 360 + Buctril M Herbicide	1.25 – 1.9 + 0.5 – 1.0 ¹	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail and Persian darnel. Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia, lamb's-quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard*** Volunteer Roundup Ready Canola (1-4 leaf stage) ¹ , Seedlings up to the 4-leaf stage ² : green smartweed, pale smartweed, lady's-thumb, cow cockle, redroot pigweed, flixweed, bluebur, shepherd's purse, kochia ³ , Russian thistle ³ , scentless chamomile ⁴ , volunteer sunflower, night flowering catchfly, cocklebur, velvetleaf ⁵ , ball mustard, American nightshade Seedlings up to the 6-leaf	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. *DO NOT use these rates on plants greater than 8 cm in height. ** For 3-4 leaf stage use 1.9 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.9 L/ha rate. ¹ Buctril M at 0.5 – 1.0 L/ha (280-560 g ai/ha) for all crops listed. ² Buctril M at 1.0 L/ha (560 g ai/ha) only. ³ Spray before plants are 5 cm high. ⁴ Spring annuals only. ⁵ Spray before plants are 8 cm high. Use this tank mix prior to seeding in wheat, barley, rye, oats, corn, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass,

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
		<p>stage²: wild tomato</p> <p>Seedlings up to the 8-leaf stage²: wild buckwheat, tartary buckwheat, common buckwheat, stinkweed, wild mustard, wormseed mustard, lamb's-quarters, common ragweed, common groundsel</p> <p>Perennials (top growth)²: Canada thistle, perennial sow thistle</p>	<p>slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow bromegrass, seedling streambank wheatgrass and reed canary grass).</p> <p>No surfactant required.</p>
<p>SHARDA GLYPHOSA TE 360 + MCPA amine (500 g/L formulation; if another formulation is used, adjust rate accordingly)</p>	<p>1.25 – 1.9 + 0.5 – 0.7</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, and Persian darnel.</p> <p>Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia, lamb's-quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***</p> <p>Volunteer Roundup Ready canola (1-4 leaf stage)³ Bluebur⁴, burdock⁴ (before 4 leaf stage), false flax⁴, flixweed⁴, lamb's-quarters⁴, mustards⁴ (except dog and tansy),</p>	<ul style="list-style-type: none"> • Weeds should be less than 15 cm tall and actively growing for best results. • Use higher rate if weeds are beyond 8 cm in height. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3-4 leaf stage use 1.9 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.9 L/ha rate. <p>⁴ MCPA amine at 0.7 L/ha (350 g ai/ha) only.</p> <ul style="list-style-type: none"> • Use this tank mix prior to seeding in lentil and chickpea. Under drought conditions, deep seeding and/or brief rain showers after seeding may cause injury to emerging

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
		prickly lettuce ⁴ , ragweeds ⁴ , redroot pigweed ⁴ , Russian pigweed ⁴ , shepherd's purse ⁴ , stinkweed ⁴ (field pennycress), vetch ⁴ , wild radish ⁴ , wild sunflower ⁴	seedlings in sprayer overlaps. • No surfactant required.
SHARDA GLYPHOSATE 360 + Express Toss-N-Go Herbicide Or Express Toss-N-Go Dry Flowable 75% Herbicide	1.26 – 1.93 + 10 g/ha (7.5 g ai/ha)	Volunteer cereals, Canada thistle (suppression), cow cockle, wild buckwheat, Canada fleabane common ragweed narrow-leaved hawk's beard, dandelion, downy brome, flixweed, giant foxtail, green foxtail, hempnettle, kochia, lady's thumb, lamb's quarters, persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer canola, volunteer flax, wild mustard, wild oats	Use this tank mix in summerfallow or prior to seeding wheat and barley. Refer to Express Toss-N-Go label for the appropriate weed growth stage. Add 350 mL/ha of surfactant – see list in section 7.3.

♦ For foxtail barley, refer to “**Perennial Weed Control**” table (section 8.1).

^B 0.56 kg ai/ha of 2,4-D. ^B, ^A Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

^C Use only amine formulations of MCPA prior to seeding in corn and field peas.

Banvel II is a registered trademark of BASF Corporation.

Pardner and Buctril® are registered trademarks of Bayer.

Express is a registered trademark of E.I.duPont Canada Company.

Toss-N-Go is a registered trademark of DuPont Canada Inc.

7.3 SURFACTANT INFORMATION

NOTE:

Addition of Surfactant - All SHARDA GLYPHOSATE 360 tank mixtures for annual weed control require the addition of a surfactant registered for use such as Agral 90, Ag Surf, or Companion. Surfactant should be added at a rate of 350 mL per hectare, in 50-100 L of clean water.

7.4 ADDITIONAL IMPORTANT INFORMATION FOR ANNUAL WEED CONTROL

SHARDA GLYPHOSATE 360, applied by itself, will not control volunteers from crops containing the Roundup Ready Gene.

Allow at least 1 day after treatment before tillage

Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds, in some situations.

For additional information and precautions, refer to the "**General Information**" and "**Mixing and Application**" sections of this label (4.0 and 5.0, respectively).

7.5 WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA (I.E. VARIETIES WITH THE ROUNDUP READY GENE)

WARNING: APPLY SHARDA GLYPHOSATE 360 ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY I.E. VARIETIES WITH THE ROUNDUP READY GENE.

NOTE: ALWAYS USE PEDIGREED (I.E. CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

For additional information and precautions refer to the “**General Information**” and “**Mixing and Application**” sections of the SHARDA GLYPHOSATE 360 label (4.0 and 5.0, respectively).

Apply SHARDA GLYPHOSATE 360 in glyphosate tolerant canola only as directed in the following weed control table.

Some short-term, visual yellowing may occur when SHARDA GLYPHOSATE 360 is applied at the late application 4 to 6 leaf stage of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT APPLY BY AIR

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

WEED CONTROL IN CANOLA WITH THE ROUNDUP READY GENE

Rate (L/ha)	Growth Stage of Crop	Weeds Controlled	Comments (Apply in 50 - 100 L/ha water)
0.825 - 1.25	0 to 6 leaf	<u>Annual Grasses</u> wild oats, green foxtail, volunteer barley, volunteer	Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.

Rate (L/ha)	Growth Stage of Crop	Weeds Controlled	Comments (Apply in 50 - 100 L/ha water)
		wheat, barnyard grass <u>Annual Broadleaves</u> stinkweed, redroot pigweed, wild mustard, Russian thistle, lambs-quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, cleavers*, wild buckwheat*, shepherds purse*, cow cockle*, night- flowering catchfly*, smartweed*, storksbill*, flixweed*, narrow-leaved hawksbeard*, round-leaved mallow*** <u>Perennials (suppression)**</u> Canada thistle, Perennial sow thistle, Dandelion <u>Perennials (season long control)</u> Quackgrass**, foxtail barley***	Ensure the crop has not advanced beyond the recommended growth stage. * Use the 1.25 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd's purse, cow cockle and night- flowering catchfly at the 1-3 leaf stage of the crop or for control of smartweed at the 4-6 leaf stage. **A single application at the 1.25 L/ha rate is required ***Sequential applications at the 1.25 L/ha rate are required. For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. Maximum 2.5 L/ha is allowed for the postemergence use.

7.5.1 TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in glyphosate tolerant canola (i.e., varieties with the Roundup Ready Gene), apply a tank mixture of 0.28 L/ha of Lontrel 360 with 1.25 L/ha of SHARDA GLYPHOSATE 360, in 100 litres of water per hectare. Apply when canola is in the 2-6 leaf stage. Refer to the Lontrel 360 and to the SHARDA GLYPHOSATE 360 label for list of other weeds controlled, timing of application, water volumes and use precautions.

7.6 WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN (I.E. VARIETIES WITH THE ROUNDUP READY GENE)

WARNING: APPLY SHARDA GLYPHOSATE 360 ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY; I.E. VARIETIES WITH THE ROUNDUP READY GENE.

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (Use 100 – 200 L/ha water volumes)
2.5	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, Russian thistle, non-glyphosate tolerant canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato, shepherd's purse, cow cockle, night flowering catchfly, stork's bill, flixweed, narrow leaved hawk's-beard Common milkweed ^{1,2} , yellow nutsedge ^{1,2} , -field bindweed ² , perennial sow thistle ³ , Canada thistle ³ .	¹ A single application of 2.5 L/ha will provide suppression only. ² For control of common milkweed, yellow nutsedge and round-leaved mallow, a second sequential application may be at least 2 weeks after the first application. ³ A second 2.5 L/ha application will improve control in heavy infestations. <ul style="list-style-type: none"> • A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application made must be applied no later than the flowering stage of the soybean. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED ♦	COMMENTS (Use 100 – 200 L/ha water volumes)
		wire-stemmed muhly. ³	<ul style="list-style-type: none"> • Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. • Wire-stemmed muhly should be 10-20 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment.
5.0	First trifoliolate leaf stage through to flowering	All weeds listed above	<ul style="list-style-type: none"> • Only one application per season at 5.0 L/ha. • Common milkweed should be 15-60 cm in height and actively growing. Yellow nutsedge should be 5-15 cm in height and actively growing- • Plants not fully emerged at the time of application will escape treatment

* Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

7.6.1 TANK MIXTURES

SHARDA GLYPHOSATE 360 plus Pursuit Herbicide

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit herbicide may be tank mixed with SHARDA GLYPHOSATE 360 at a rate of 2.5 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit and apply up to and including the 3rd trifoliolate leaf stage of the Roundup Ready

soybeans in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit as per instructions on the Pursuit label and then add SHARDA GLYPHOSATE 360 as per instructions on this label.

A PHI of 100 days is required for the tank mix of SHARDA GLYPHOSATE 360 and Pursuit herbicide on glyphosate tolerant soybeans.

Only one application per season of SHARDA GLYPHOSATE 360 at 2.5 litres per hectare tank mixed with Pursuit herbicide at 0.16 to 0.21 litres per hectare is permitted.

Refer to the Pursuit herbicide label for further safety precautions and handling instructions.

◆ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

SHARDA GLYPHOSATE 360 and Classic 25 DF Herbicide*

For season-long control of dandelion, annual sow thistle, and yellow nutsedge, apply Classic 25 DF Herbicide at 36 grams per hectare plus either SHARDA GLYPHOSATE 360 at 2.5 litres per hectare*. Add a non-ionic surfactant such as Agral 90, Citowett Plus, or Ag-Surf at 0.2% v/v. Apply when soybeans are in the 1-3 trifoliolate stage; dandelions and annual sow thistle less than 15 cm tall and across; and up to the 8 leaf stage for yellow nutsedge. **USE THIS TANK MIXTURE ONLY ON SOYBEANS WITH THE ROUNDUP READY® TRAIT.**

Consult the Classic 25 DF Herbicide label for tank mixing instructions and use precautions including instructions on replanting to other crops.

*Use this tank mix only in cases of heavy infestation of yellow nutsedge.

Pursuit is a registered trademark of BASF Agrochemical Products B.V. Netherlands.
Classic is a registered trademark of E.I. duPont Canada Company.

7.7 WEED CONTROL IN GLYPHOSATE TOLERANT CORN I.E., VARIETIES WITH THE ROUNDUP READY GENE

WARNING: APPLY SHARDA GLYPHOSATE 360 ON GLYPHOSATE TOLERANT CORN VARIETIES ONLY; I.E., VARIETIES WITH THE ROUNDUP READY GENE.

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) CORN SEED DESIGNATED AS

GLYPHOSATE TOLERANT. CORN WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (use 100-200 L/ha water volumes)
2.5	Up to and including 8 leaf stage	Velvetleaf, common ragweed, common lamb's-quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, wild mustard, Russian thistle, non-glyphosate tolerant canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato, shepherd's purse, cow cockle, night-flowering catchfly, stork's-bill, flixweed, narrow-leaved hawk's-beard common milkweed ^{1,2} , yellow nutsedge ^{1,2} , round-leaved mallow ² , field bindweed ² , perennial sow thistle ³ , Canada thistle ³ , wire-stemmed muhly ³	<p>¹A single application of 2.5 L/ha will provide suppression only.</p> <p>²For control of common milkweed, yellow nutsedge and round-leaved mallow, a second sequential application may be at least 2 weeks after the first application.</p> <p>³A second 2.5 L/ha application will improve control in heavy infestations.</p> <ul style="list-style-type: none"> • A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application must be applied no later than the 8 leaf stage of the corn. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (use 100-200 L/ha water volumes)
			<ul style="list-style-type: none"> • Wire-stemmed muhly should be 10-20 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment.

7.7.1 TANK MIXTURES

For tank mixtures, add either atrazine or Marksman Herbicide according to instructions on the product label, and then add SHARDA GLYPHOSATE 360 according to instructions on this label (section 5). Refer to the atrazine and Marksman Herbicide product labels for further safety precautions and product handling instructions.

DO NOT APPLY BY AIR

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED☐	COMMENTS (use 100-200 L/ha water volume)
2.5 + 0.75-1.0 kg ai/ha atrazine*	Up to and including 5th leaf stage	Residual control of lamb's-quarters, redroot pigweed, common ragweed	Tank mix should be used when only a single application timing is desired. Use the higher rate of atrazine for heavier weed infestations.
2.5 + 2.5-3.7 L/ha Marksman	Up to and including 5th leaf stage	Residual control of lamb's-quarters, redroot pigweed, common ragweed, velvetleaf	Tank mix should be used when only a single application timing is desired. Use the higher rate of Marksman for heavier weed infestations.

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25cm in height will be inconsistent, although some weeds may be controlled.

* 0.75-1.0 kg ai atrazine/ha is equivalent to 1.56-2.08 L/ha Aatrex Liquid 480.

Marksman is a registered trademark of BASF AG.
 Aatrex is a registered trademark of Syngenta group company.

8.0 PERENNIAL WEED CONTROL

ALWAYS READ PRECAUTIONARY STATEMENTS, GENERAL INFORMATION and MIXING and APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

DO NOT APPLY BY AIR

When applied as recommended under the conditions described, this product will control the perennial weeds listed in the following table:

8.1 PERENNIAL WEED CONTROL WITH SHARDA GLYPHOSATE 360

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Quackgrass (control, light to moderate infestations)	3 to 4 green leaves or more	2.5	50 - 300	<ul style="list-style-type: none"> . Apply in clean water using flat fan nozzles. . Allow 3 or more days after treatment before tillage. . Refer to "Quackgrass" notes in section 8.2.1 for more information. . For higher water volumes (i.e. 150 - 300 L/ha) an approved surfactant must be added at 0.5 litres per 100 litres of clean water (0.5% v/v). Refer to list in section 8.2.2. See also below.
Quackgrass (long term control, heavy infestations,	3 to 4 green leaves or more	2.5 - 7.0	50 - 300	<ul style="list-style-type: none"> . Allow 3 or more days after treatment before tillage.

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
high water volumes)				<ul style="list-style-type: none"> . Rates higher than 2.5 L/ha will provide more consistent, longer term control, especially with heavier infestations and/or higher water volumes (ie 150-300 L/ha) . Refer to "Quackgrass" notes in section 8.2.1 for more information.
Canada Thistle	rosette stage (summer-fallow)	2.5	50 - 100	<ul style="list-style-type: none"> . Apply in clean water using flat fan nozzles. . Allow 10 or more days after treatment before tillage. . Refer to "Canada Thistle" notes in section 8.2.3 for more information.
Canada Thistle	bud stage or beyond	4.75 - 7	100 - 300	<ul style="list-style-type: none"> . Allow 5 or more days after treatment before tillage.
Field Bindweed	full bloom or beyond	7 - 12	100 - 300	<ul style="list-style-type: none"> . Allow 7 or more days after treatment before tillage
Common Milkweed*	bud to full bloom (preharvest)	2.5	50 - 100	<ul style="list-style-type: none"> . See "Preharvest Treatment" (section 9.9.0) for more information.
	bud to full bloom	12	100 - 300	<ul style="list-style-type: none"> . Allow 7 or more days after treatment before tillage.

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
				<ul style="list-style-type: none"> . Reduced control may occur after full bloom. . Milkweed may not all be in the correct stage, therefore, repeat treatments may be required.
Toadflax	Vegetative Stage (summerfallow) Bud to Full Bloom (preharvest)	2.5	50-100	<ul style="list-style-type: none"> . Apply in clean water using flat fan nozzles . Allow 7 or more days after treatment before tillage in summerfallow . For more information, see “Toad Flax control” (section 8.2.4), or “Preharvest treatment” (section 9.9)
Alfalfa	Early bud to full bloom stage. Fall applications only	3.7 - 5.0	50 - 300	<ul style="list-style-type: none"> . Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. <p style="margin-left: 40px;">For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see Section 8.2.6</p>

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Dandelion	< 15 cm	2.5	50 - 100	<ul style="list-style-type: none"> . Allow 3 or more days after treatment before tillage for all rates. . Use the higher rate when infestations are heavy. . Refer to Dandelion notes in Section 8.2.5 for more information. . Allow 7 or more days after treatment before tillage. For more information, see “Preharvest treatment” (section 9.9)
	> 15 cm	3.7 - 5.0	50 - 300	
	Rosette to full bloom (preharvest)	2.5	50 - 100	
Foxtail barley	Seedling to heading	2.5-5.0	50 -100	<ul style="list-style-type: none"> -Allow a minimum of 1 day after treatment before tillage or seeding. -Use higher rates for larger, more established plants, heavy infestations or if plants are stressed
Other Perennials (see listing section 6.2).	early heading or early bud stage	7 - 12	100 - 300	<ul style="list-style-type: none"> . Allow 7 or more days after application before tillage.

***NOTE:** For spot treatment, mix 120 mL of product in 5L clean water per 100 m². (2.5 - 12 L/ha is approximately equivalent to 25 - 120 mL/100 m², respectively).

8.2 SPECIAL NOTES FOR PERENNIAL WEED CONTROL

8.2.1 QUACKGRASS

For season-long control on fall tilled ground: Apply 2.5L/ha of this product in spring prior to seeding. Apply in 50 to 100 L/ha of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4-5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 cm.

NOTE:

This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

8.2.2 Surfactant Information:

The following is a list of approved surfactants for use with SHARDA GLYPHOSATE 360 for control of quackgrass:

Agral 90 Ag Surf Companion

Always refer to surfactant label for specific instructions regarding use of that product.

8.2.3 CANADA THISTLE

Control of Canada Thistle at the rosette stage: To ensure the proper timing of application the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 15th and August 1.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15cm in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SHARDA GLYPHOSATE 360 plus Banvel Tank Mixtures

For control of Canada thistle (and perennial sow thistle) in summerfallow or in post-harvest stubble, apply 1.7 L/ha SHARDA GLYPHOSATE 360 plus 1.25 L/ha Banvel in 100-200 L/ha of clean water. In addition, add 350 mL/ha of a non-ionic surfactant registered for use with this product, such as Agral 90, Ag Surf, or Companion.

For best results in summerfallow, cultivate in the spring and apply when the majority of thistles are 15 cm to 25 cm tall and before the bud stage. Cultivate 3 weeks after application.

In post-harvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE:

Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

8.2.4 TOADFLAX

Control of Toadflax in a Summerfallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 10-21.
2. Allow toadflax to regrow for a minimum of 4-5 weeks until they are minimum of 15 cm tall and at a lush green vegetative stage.

Note: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

8.2.5 DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

8.2.6 ALFALFA CONTROL WITH 2,4-D TANK MIX:

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 2.5 - 5.0 L/ha SHARDA GLYPHOSATE 360 and 1.2 - 2.4 L/ha of any 500 g/L 2,4-D amine or low volatile ester formulation in 100-200 L water/ha. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e. 1.2 L/ha) and 2.5 - 5.0 L/ha SHARDA GLYPHOSATE 360. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14 day interval between application and planting is required.

Use the higher SHARDA GLYPHOSATE 360 rates when perennial grasses are prevalent.

8.2.7 ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to "**Perennial Weed Control with SHARDA GLYPHOSATE 360**"(section 8.1).

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 L/ha of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow-up tillage after application should be delayed 5-7 days for best results (see Weed Control Tables, section 7.1 and 8.1, for specific tillage interval for each weed).

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

9.0 CROPLAND SITUATIONS

ALWAYS READ PRECAUTIONARY STATEMENTS, GENERAL INFORMATION and MIXING and APPLICATION SECTIONS (3.0, 4.0 and 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

DO NOT APPLY BY AIR EXCEPT FOR PREHARVEST AERIAL APPLICATION (SECTION 9.9.2)

This product can be applied as a broadcast spray or spot treatment prior to planting all crops, post-harvest to annual crops, preharvest in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, soybeans, dry beans and forages, and in summerfallow. It may also be applied as a broadcast spray in glyphosate tolerant corn, soybean or canola i.e. varieties with the Roundup Ready gene (see Sections 7.5, 7.6, 7.7). It may also be applied as a directed spray in orchards, vineyards, blueberries and strawberry, and using selective equipment in soy and dry beans, orchards, vineyards, cranberries and strawberry (refer to specific sections below for more information). **For specific instructions on weed control in the following cropping situations, always refer to the Annual and Perennial Weed Control sections (7.0 and 8.0) for more information.**

9.1 PRIOR TO PLANTING - ALL CROPS

This product may be applied prior to planting all crops for control of emerged weeds listed on this label. Ensure weeds are at the desired stage at the time of application. This product does not provide pre-emergent weed control and newly germinating weeds may be a problem in the crop. **APPLY BEFORE SEEDING OR TRANSPLANTING.**

9.1.1 PRIOR TO PLANTING – TANK MIXES* - SOYBEANS

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

SHARDA GLYPHOSATE 360 plus Pursuit Herbicide

SHARDA GLYPHOSATE 360 plus Pursuit Herbicide can be applied prior to or after seeding, but before crop emergence. SHARDA GLYPHOSATE 360 will control emerged weeds listed on this label when applied as directed (refer to Annual and Perennial Weed control sections in the SHARDA GLYPHOSATE 360 product label). Pursuit Herbicide will control weeds germinating from seed.

ONLY SOYBEANS, WHITE BEANS, KIDNEY BEANS, PROCESSING PEAS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 100 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE

SHARDA GLYPHOSATE 360 plus metribuzin (Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide, or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds taller than 4 cm in soybeans, apply SHARDA GLYPHOSATE 360 in tank mix with Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide or Lexone DF Herbicide as a preplant surface or pre-emergence application before crop emergence.

SHARDA GLYPHOSATE 360 plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in soybeans.

Apply SHARDA GLYPHOSATE 360 in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.15 – 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

Perennial weeds such as quack grass may not be controlled with lower rates of SHARDA GLYPHOSATE 360. Use higher rates of SHARDA GLYPHOSATE 360 if perennial weeds are present.

SHARDA GLYPHOSATE 360 plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus metribuzin (Sencor 75DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds in soybeans.

Apply as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence. Perennial weeds such as quack grass may not be controlled with lower rates of SHARDA GLYPHOSATE 360.

SHARDA GLYPHOSATE 360 plus Broadstrike Dual Magnum Soybean Herbicide

Broadstrike Dual Magnum Soybean Herbicide at 1.56 L/ha may be tank mixed with SHARDA GLYPHOSATE 360 at 2.5 L/ha for control of existing annual weeds and certain perennial weeds including quack grass. This tank mix may be applied preplant surface or pre-emergence in minimum till or no-till conditions. When mixing, add the Broadstrike Dual Magnum Soybean Herbicide component first.

SHARDA GLYPHOSATE 360 plus Frontier Herbicide

For burndown and residual control of selected annual weeds apply SHARDA GLYPHOSATE 360 plus Frontier Herbicide preplant surface or pre-emergence.

SHARDA GLYPHOSATE 360 plus linuron

For burndown and residual control of selected annual weeds apply SHARDA GLYPHOSATE 360 plus linuron after seeding but before crop emergence.

SHARDA GLYPHOSATE 360 plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with SHARDA GLYPHOSATE 360. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

SHARDA GLYPHOSATE 360 plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems: Apply this tank mixture in a minimum of 200 L/ha of total volume.

9.1.2 PRIOR TO PLANTING – TANK MIXES* - CORN

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

SHARDA GLYPHOSATE 360 plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn. Apply SHARDA GLYPHOSATE 360 in tank mix with Dual Magnum or Dual II Magnum at 1.25 to 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence. NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of SHARDA GLYPHOSATE 360. Use higher rates of SHARDA GLYPHOSATE 360 if perennial weeds are present.

SHARDA GLYPHOSATE 360 plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus Aatrex Liquid 480 Herbicide

For burndown and residual control of selected annual weeds in corn. Apply SHARDA GLYPHOSATE 360 in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.25 – 1.75 L/ha plus Aatrex Liquid 480 Herbicide at 2.1 - 3.1 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence. NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of SHARDA GLYPHOSATE 360. Use higher rates of SHARDA GLYPHOSATE 360 if perennial weeds are present.

SHARDA GLYPHOSATE 360 plus Primextra II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn apply SHARDA GLYPHOSATE 360 plus Primextra II Magnum preplant surface or pre-emergence application before crop emergence. This tank mixture requires the use of a surfactant, either Agral 90 or Ag-Surf. See mixing instructions for more information.

Perennial weeds such as quack grass may not be controlled with lower rates of SHARDA GLYPHOSATE 360. Use higher rates of SHARDA GLYPHOSATE 360 if perennial weeds are present.

SHARDA GLYPHOSATE 360 plus Fieldstar Herbicide

For burndown and residual control of selected annual weeds apply SHARDA GLYPHOSATE 360 plus Fieldstar Herbicide as a preplant surface or pre-emergence application before crop emergence.

SHARDA GLYPHOSATE 360 plus Frontier Herbicide

For burndown and residual control of selected annual weeds apply SHARDA GLYPHOSATE 360 plus Frontier Herbicide as a preplant surface or pre-emergence application before crop emergence.

SHARDA GLYPHOSATE 360 plus Prowl herbicide

For burndown and residual control of selected annual weeds apply SHARDA GLYPHOSATE 360 plus Prowl herbicide after seeding but before crop emergence.

SHARDA GLYPHOSATE 360 plus linuron herbicide

For burndown and residual control of selected annual weeds apply SHARDA GLYPHOSATE 360 plus linuron herbicide after seeding but before crop emergence.

SHARDA GLYPHOSATE 360 plus Converge Pro Herbicide or Converge 75 WDG Herbicide

Surface Preplant:

When weed growth is present at the time of application, SHARDA GLYPHOSATE 360 can be added to the Converge Pro Herbicide or Converge 75 WGD Herbicide + atrazine treatment for burndown control of these weeds. Do not incorporate.

Preemergence:

CONVERGE 75 WDG Herbicide can be applied to the soil surface up to 14 days prior to planting. CONVERGE 75 WDG Herbicide must be tankmixed with atrazine when applied as a surface preplant application. Converge Pro Herbicide or Converge 75 WGD Herbicide can also be applied after planting to just prior to crop emergence. Atrazine and/or SHARDA GLYPHOSATE 360 can be tank mixed with pre-emergent applications of Converge Pro Herbicide or Converge 75 WGD Herbicide.

Apply Converge Pro Herbicide at 165-220 mL per hectare, or Converge 75 WGD Herbicide at 105-140 g per hectare, tankmixed with SHARDA GLYPHOSATE 360 at 2.5 litres per hectare for burndown control of emerged weeds in all tillage management systems and improved control of established dandelion in zero-tillage management systems. A three-way tankmix of Converge Pro Herbicide or Converge 75 WGD Herbicide + atrazine + SHARDA GLYPHOSATE 360 can be used to provide residual control of the weeds listed in the Converge Pro Herbicide or Converge 75 WGD Herbicide + atrazine section.

SHARDA GLYPHOSATE 360 plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with SHARDA GLYPHOSATE 360. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

SHARDA GLYPHOSATE 360 plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems:

Apply this tankmix in a minimum of 200 L/ha of total volume.

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Lexone is a registered trademark of E.I. duPont Canada Company.

Dual, Magnum and Primextra are registered trademarks of Syngenta group company.

Broadstrike and Fieldstar are trademarks of Dow Agrosiences LLC.

Frontier is a registered trademark of BASF Corporation.

9.2 POST HARVEST STUBBLE TREATMENT

This product may be applied in the fall as a postharvest stubble treatment for control of perennial weeds such as quackgrass and Canada thistle. Allow weeds to regrow to the desired stage (20-25 cm tall for quackgrass and Canada thistle) before application and ensure they have a high proportion of green coloration. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frosts prior to application may decrease control.

9.3 SPOT TREATMENT (IN-CROP)

This product can be applied as an in-crop spot treatment in barley, corn, oats, soybeans, wheat, strawberry, blueberry, forage grasses and legumes including seed production. Applications should be made using the same rates and at the same growth stages as listed in the weed control tables (7.1, 8.1) or use a 1 percent solution for annual weeds and quackgrass and a 2 percent solution for other perennial weeds (a 1percent solution equals 1 litre SHARDA GLYPHOSATE 360 in 100 litres of spray solution). One or two per cent solutions should be applied to wet, but not run-off. Applications can be made using a boom sprayer, hose and handgun, or hand sprayer in accordance with instructions in the "**Application Equipment**" section (5.2).

9.3.1 Grazing Restrictions: Applications can be made up to heading of small grains, initial pod set on soy and dry beans, silking of corn and emergence of seed heads. The crop in the treated area will be killed. Take care to avoid drift for the same reason. **DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS FOR SHARDA GLYPHOSATE 360 TO TRANSLOCATE INTO ALL PLANT PARTS BEFORE GRAZING OR HARVESTING TREATED AREAS IN FORAGES.**

9.4 SUMMERFALLOW TREATMENT

This product, or labelled tank mixtures, may be applied in summerfallow to control weeds listed on this label. Ensure weeds are at the desired growth stage and actively growing at application for best results. Reduced control may result if weeds are drought stressed. Weeds will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds.

9.5 MINIMUM AND ZERO TILLAGE CROPPING SYSTEMS (ALL FIELD CROPS, INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES, CORN AND POTATOES)

This product may be applied prior to seeding or after seeding, but before crop emergence for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Applications made too far in advance of seeding may allow weeds to emerge between application and crop emergence, as this product does not provide residual weed control.

Minimum and Zero Tillage Tank Mixtures

9.5.1 SHARDA GLYPHOSATE 360 plus 2,4-D amine or ester can be applied prior to seeding or after seeding, but before crop emergence **in wheat, winter wheat, barley, and rye**. Refer to “**Annual Weed Control with SHARDA GLYPHOSATE 360 Tank Mixtures**” table for information (section 7.2).

9.5.2 SHARDA GLYPHOSATE 360 plus bromoxynil (Pardner) can be applied prior to seeding or after seeding, but before crop emergence **in wheat, barley and oats**. Refer to “**Annual Weed Control with SHARDA GLYPHOSATE 360 Tank Mixtures**” table for information (section 7.2).

9.5.3 SHARDA GLYPHOSATE 360 plus Pursuit® can be applied prior to, or after, seeding, but before crop emergence in soybeans. SHARDA GLYPHOSATE 360 will control emerged weeds

listed on this label when applied as directed (refer to “**Annual and Perennial Weed Control**” sections, 7.0 and 8.0). Pursuit will control weeds germinating from seed. Add the recommended rates of both products in 100 litres of water/ha, following the instructions on the Pursuit herbicide label.

ALWAYS REFER TO THE PURSUIT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS. ONLY SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 120 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE

® Pursuit is a registered trademark of BASF Corporation.

9.5.4 SHARDA GLYPHOSATE 360 plus MCPA can be applied prior to seeding in wheat, rye, barley, oats, corn (field and sweet; MCPA amine only), flax and field peas (MCPA amine only). Refer to “**Annual Weed Control with SHARDA GLYPHOSATE 360 Tank Mixtures**” table for information (section 7.2).

9.5.5 SHARDA GLYPHOSATE 360 plus Buctril M® can be applied prior to seeding in wheat, rye, corn, barley, oats, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, Intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow bromegrass, seedling streambank wheatgrass and reed canary grass). Refer to “**Annual Weed Control with SHARDA GLYPHOSATE 360 Tank Mixtures**” table for information (section 7.2).

9.5.6 SHARDA GLYPHOSATE 360 plus MCPA amine can be applied prior to seeding in lentil and chickpea. Refer to “**Annual Weed Control with SHARDA GLYPHOSATE 360 Tank Mixtures**” table for information (section 7.2).

9.5.7 SHARDA GLYPHOSATE 360 plus Express Toss-N-Go Herbicide Or Express Toss-N-Go® Dry Flowable 75% Herbicide in pre-seed situations, wheat and barley may be seeded after a minimum of 24 hours after application. Refer to “**Annual Weed Control with SHARDA GLYPHOSATE 360 Tank Mixtures**” table for information (section 7.2).

ALWAYS REFER TO THE EXPRESS® TOSS-N-GO HERBICIDE OR EXPRESS TOSS-N-GO DRY FLOWABLE 75% HERBICIDE LABEL FOR FURTHER INFORMATION ON APPLICATION DIRECTIONS, TANK MIXING, AND USE PRECAUTIONS.

9.6 FORAGE LEGUMES AND GRASSES

This product may be applied for control of emerged weeds prior to emergence of forage legumes and grasses. If the forages are to be under-seeded with a cover crop, this product must be applied prior to planting the cover crop.

9.7 PASTURE RENOVATION

Use this product to control or suppress existing vegetation for zero-tillage seeding of legumes into established sod for pasture renovation. Delay spraying until weed growth is at least 20 cm in height and a maximum number of seedlings or shoots have emerged. Application can be made immediately before, during or after seeding, but before crop emergence.

9.8 FORAGE SEED PRODUCTION

For spot treatment control of perennial weed problems such as quackgrass and Canada thistle in seed fields, apply as directed to vegetation that is at least 20 to 25 cm in height but before emergence of seed head. The crop in the treated areas will be killed. Take care to avoid drift outside target area for the same reason.

9.9 PRE-HARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle, SHARDA GLYPHOSATE 360 can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed) (including glyphosate tolerant varieties), flax (including low linolenic acid varieties), lentils, peas, dry beans, soybeans (including glyphosate tolerant varieties) and forages. DO NOT apply to crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations. EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

SHARDA GLYPHOSATE 360 should be applied pre-harvest at 2.5 L/ha in 50 to 100 L/ha of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For forage crops, apply this product at 2.5 - 5.0 L/ha 3-7 days prior to the last cut before rotation or forage renovation. Consult the table "**Guidelines for Timing of Preharvest Applications**" (section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must

be made at the correct stage of both weed and crop growth.

Apply only during the period 7-14 days (or 3-7 days for forage applications) before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g. sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife, should be avoided. Leave a 15 meter buffer zone between the last spray swath and the edge of any of these habitats.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

DO NOT APPLY BY AIR

9.9.1 GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including glyphosate tolerant varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low linolenic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS (including glyphosate tolerant varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.
FORAGES	Not applicable	Normal stage for forage

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
		harvesting.

9.9.2 PREHARVEST AERIAL APPLICATION

Refer to general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific application instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION PRAIRIE PROVINCES ONLY (including PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators and aerial application services approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patternation) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 – 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a SHARDA GLYPHOSATE 360 aerial application training course.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the *direct daily*

supervision of a qualified pilot.

DIRECTIONS FOR USE

SHARDA GLYPHOSATE 360 may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. SHARDA GLYPHOSATE 360 can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, dry beans and soybeans. **DO NOT apply to any crops if grown for seed production.**

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

SHARDA GLYPHOSATE 360 should be applied at 2.5 L/ha in 20 – 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table “**Guidelines for Timing of Preharvest Applications**” (Section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 – 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

9.10 TREE PLANTINGS

Shelterbelts and Nursery Stock (Woody Ornamentals)

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established nurseries or shelterbelts of the following species:

Deciduous

Ash - *Fraxinus spp.*
Caragana - *Caragan spp.*
Cherry - *Prunus spp.*
Elm - *Ulmus spp.*
Lilac - *Syringa spp.*
Maple - *Acer spp.*
Mountain Ash - *Sorbus spp.*
Poplar - *Populus spp.*
Russian Olive - *Elaeagnus spp.*
Willow - *Salix spp.*

Coniferous

Fir - *Abies spp.*
Juniper - *Juniperus spp.*
Pine - *Pinus spp.*
Spruce - *Picea spp.*
Yew - *Taxus spp.*

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

9.11 TREE, VINE, BERRY AND OTHER CROPS

This product is recommended for annual and perennial weed control in established vineyards or orchards, in blueberry, cranberry and strawberry, or for site preparation prior to transplanting tree and vine crops. Applications may be made with boom equipment, shielded sprayers, hand-held and high volume orchards guns, or with wiper applicator equipment (orchards, vineyards, cranberry and strawberry only). See "**Mixing and Application Equipment Information**" (section 5.2) and the following table for specific information on the use of equipment.

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual or pre-emergent weed control. For subsequent weed control, follow a program using residual herbicides or use repeated applications of this product. Do not apply more than 35 litres of this product per hectare per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES, OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

WEED CONTROL IN TREE, VINE, BERRY AND OTHER CROPS

Crop	Rate (L/ha)	Pre-Harvest Interval (days)	Max. Appl. per Yr.	Weeds Controlled	Comments (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Apples Apricot Cherry (Sweet/sour) Peaches Pears Plums	2.25-12	30	3	Annual and perennial weeds	
Apples Grapes	Tank Mix 2.25-12 + Simazine 2.0-4.5 kg ai/ha	-	1	Annual and perennial weeds	<ul style="list-style-type: none"> - Will provide season-long pre-emergent control - Do not apply to coarse, sandy or gravelly soil - Use according to the more restrictive label direction for each product in the mix - DO NOT apply to orchards or vineyards that have been established less than 1 or 3 years, respectively - Simazine rate is equivalent to 2.25-5.0 kg/ha Princep® Nine-T®, or 4.0-9.0 kg/ha Simadex®
Grapes	2.25-12	14	3	Annual and perennial weeds	<ul style="list-style-type: none"> - Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape - Suckering should be conducted within 2 weeks prior to application - Do not apply to vines which have been established less than 3 years
Highbush (cultivated) blueberry	2.8-5.6	30	1	Quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	1-2% solution (spot)	Apply in non-	1	Woody brush	- Apply as a directed spray in mid-summer of the

Crop	Rate (L/ha)	Pre-Harvest Interval (days)	Max. Appl. per Yr.	Weeds Controlled	Comments (Refer to sections 7.1 and 8.1 for specific rates for weed control)
	application)	bearing year only		(section 6.3)	vegetative (non-bearing) year - See section 9.3 for instructions on spot treatments
Filberts Hazelnut (established plantations)	2.25-3.5	14	-	Annual weeds	- Use as a directed spray, with no more than 275 kPa pressure
Walnut Chestnut Japanese heartnut	2.25-12	-	2	Annual and perennial weeds	- Apply late spring and fall, post-harvest but prior to a killing frost - Apply in 200-300 L water as a directed spray, using no more than 275 kPa pressure - Apply alternatively as a 2% wiper solution (see Wiper Applications, section 9.12)
Cranberry	20% Solution (1L SHARDA GLYPHOSATE 360+ 4L water)	30	1	Annual and perennial weeds	- Apply using wick or wiper applicators (section 9.12)
Strawberry	1-2% solution (spot application) 33% solution (wiper application)	30	1	Emerged perennial weeds	- Apply when weeds are at a susceptible growth stage (see sections 8.1, 2) - See section 9.3 for instructions on spot treatments - See section 9.12 for instructions on wiper applications
Asparagus	1.25 - 2.5	7	1	Fall seeded rye grass	- apply in spring before emergence of crop shoots

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Simadex is a registered trademark of Bayer.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: (NORTH AMERICAN GINSENG). The DIRECTIONS FOR USE for this product for the use(s) described on this label were developed by persons other than Sharda Cropchem Limited and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Sharda Cropchem Limited itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed on this label. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Sharda Cropchem Limited harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described on this label.

DIRECTIONS FOR USE

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS.

NORTH AMERICAN GINSENG

New Gardens (British Columbia only): Apply this product in the fall after seeding but before freeze-up in new gardens only to control volunteer cereals. Apply when weeds are at the growth stages listed on the product label. Use a single application of 2.5 litres per hectare in 50 to 100 litres water per hectare. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

Existing/Established Gardens: Apply this product in the spring before the crop has emerged from the soil. Apply when weeds are at the growth stages described in the product label. A maximum of two 2.5 litres per hectare applications in 50 to 100 litres water per hectare may be made in a season. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

9.12 SELECTIVE EQUIPMENT

WIPER APPLICATORS

This product may be applied with a wiper applicator, after dilution and thorough mixing with water, to listed weeds in soy and dry beans, grapes, orchards, cranberries, lowbush blueberries and strawberries. Applications must be made before initial pod set in soy and dry beans. (It may also be used in any industrial, tree planting and non-crop site specified on this label. See sections 9.10, 10.1.)

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent

material containing the herbicide solution. Wiper applicators include either roller or wick devices which physically wipe appropriate concentrations or amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Performance may be improved by reducing speed in areas of heavy weed infestations to insure adequate wiper saturation. Best results may be obtained if 2 applications are made in opposite directions.

AVOID CONTACT WITH DESIRABLE VEGETATION. Contact of the herbicide solution with desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that wiper contact point is at least 5 cm above the desirable vegetation. Droplets or foam of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications should be made when the weeds are a minimum of 15 cm above the desirable vegetation. Best results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. See the “**Weed Control**” tables in this label (sections 7.1 and 8.1) for recommended stage of growth for specific weeds.

NOTES

- **Maintain equipment in good operating condition. Avoid leakage or dripping onto desirable vegetation.**
- **Adjust height of applicator to insure proper contact with weeds.**
- **Keep wiping surfaces clean.**
- **Maintain recommended roller RPM on roller applicators while in use.**
- **Keep wiper material at proper degree of saturation with herbicide solution.**
- **DO NOT use wiper equipment when weeds are wet.**
- **DO NOT operate equipment at ground speeds below 4 and greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to insure good coverage of weeds.**
- **Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.**
- **Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended**

herbicide solution directly to the weed.

- . **Care must be taken with all types of wipers to insure that the absorbent material does not become over-saturated, causing the herbicide to drip onto desirable vegetation.**
- . **With all equipment, drain and clean wiper parts immediately after using this product, by thoroughly flushing with water.**

For Roller Applicators--Mix 0.5 to 1.0 litres of this product in 10 litres water to prepare a 5 to 10 percent solution. Roller speed should be maintained at 50 to 150 rpm.

For Wick or other Wiper Applicators--Mix 1 litre of this product in 2 litres of water to prepare a 33 percent solution.

10.0 NON-CROPLAND USES

INDUSTRIAL, RIGHTS-OF-WAY, RECREATIONAL, AND PUBLIC AREAS

ALWAYS READ PRECAUTIONARY STATEMENTS, GENERAL INFORMATION and MIXING and APPLICATION SECTIONS (3.0, 4.0 and 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

DO NOT APPLY BY AIR EXCEPT FOR RIGHTS-OF-WAY (SECTION 10.2.2).

This product can be used to control annual and perennial weeds and woody brush and trees listed on this label in non-crop areas such as railroad, pipeline, highway, power and telephone rights-of-way; petroleum tank farms and pumping installations; roadsides; storage areas; lumberyards; fence rows; industrial plant sites; parking areas; school yards, parks, golf courses, other public areas; airports and similar industrial or non-crop areas.

NOTE: For all industrial, rights-of-way, recreational and public areas, repeat treatments may be necessary to control regeneration or new growth.

When applied as recommended under the conditions described, this product will control weeds in non-cropland areas as listed in the following table.

10.1 WEED CONTROL IN NON-CROPLAND AREAS WITH SHARDA GLYPHOSATE 360

WEEDS	GROUND APPLICATION**		COMMENTS
	BOOM APPLICATION	Hand Held High Volume Application	

	Rate * (L / ha)	Water Vol.* (L /ha)	% Solution	
Annual grasses and broadleaves	2.25 - 3.5	50 - 100	1	Actively growing weeds
Perennial Weeds				
Quackgrass	2.5	50 - 300	1	Actively growing weeds
	4.75 - 7.0	50 - 300	2	Add 0.5% v/v of a recommended surfactant when using water volumes greater than 150 L (see section 8.2.2)
Canada Thistle (Bud Stage)	4.75 - 7.0	100 - 300	2	Higher rate for long term control and for heavy infestations
Purple loosestrife	6.0	300-600	1 - 2 (or 33% for wiper application)	See section 10.2.3 for instructions on purple loosestrife applications
Other Perennials	7.0 - 12	100 -300	2	Summer through fall is optimum
Brush and Trees				
Birch, Cherry, Poplar, Western Snowberry, Willow	3.0 - 6.0	100 - 300	1 - 2	Summer through early fall (see section 10.2)
Maple, Raspberry/ Salmonberry, Alder	6.0	100 - 300	2	Late Summer through fall Fall is optimum
Turf Renovation Annual and Perennial Weeds	2.5 - 12.0	100 - 300	1 - 2	Use higher end of the rate range for perennials

WEEDS	GROUND APPLICATION**			COMMENTS
	BOOM APPLICATION		Hand Held High Volume Application	
	Rate * (L / ha)	Water Vol.* (L /ha)	% Solution	
Roadside Vegetation (1-2 m wide along shoulders) Annual Weeds (refer to Tank-Mix sections on product labels for specific weeds controlled)	1) 0.75-1.0 + 1.25-2.5L DyClear®480 or 2) 0.75-1.0 + 0.30 L DyClear®480 + 1.2L 2,4-D amine 500	25-150	-	Refer to annual weed control table in this label (section 7.1) for appropriate product rate for specific weeds For 2,4-D amine formulations with a different guarantee, adjust the rate accordingly No application to standing water.
Residual Control Annual and Perennial Weeds (the simazine component of this tank mixture will provide season long control of most germinating broadleaf weeds and grasses. It may also provide post-emergent activity on certain annual weeds)	2.5 - 12 + a) 2.5-5.6 kg Simazine 80W or + b) 4.0-9.0 L Simadex® Flowable	200-400	-	Do not apply to coarse, sandy or gravelly soil. One application per year. Use according to the most restrictive label directions for each product in the mixture. For other simazine formulations registered for industrial/ non-cropland areas, use equivalent rates; i.e. 2.0-4.5 kg simazine/ha

* For more information on rates, water volumes and application, refer to the "Annual and Perennial Weed Control" sections of this booklet (7.1 and 8.1 respectively).

** Aerial application may be used for brush and tree control in Industrial rights-of-way only. See aerial application (section 10.2.2).

DyCler® is a registered trademark of Syngenta group company.
Simadex® is a registered trademark of Bayer.

10.2 APPLICATION INFORMATION FOR NON-CROPLAND USES

Foliar Applications

Spray coverage should be uniform and complete. Do not spray to the point of run off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURF GRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

This product does not provide residual weed control. For subsequent weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

10.2.1 GROUND APPLICATIONS: For all non-cropland uses

For woody brush and trees, apply 3 to 6 litres of this product per hectare. Use ground boom or boomless, or mist blower equipment, or apply as a 1 to 2 percent solution using hand-held high volume equipment. Apply as directed in the recommended volume of clean water to foliage of actively growing vegetation. Use the 6 L/ha rate for Maple, Alder and Willow* species, as well as for hard to control perennial weed species.

(* Suppression only)

Spray coverage should be uniform and complete. Do not spray to the point of runoff. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages.

10.2.2 AERIAL APPLICATIONS: For industrial rights-of-way only

Refer to the general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific application instructions in this section.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume 30-100 litres per hectare.

For woody brush and trees, apply 3 to 6 litres of this product per hectare. Use the 6 litres per hectare rate for Maple, Alder and Willow* species, as well as for hard to control perennial weed species. Use the recommended rates of this herbicide in 30 to 100 litres of water per hectare. As density of vegetation increases, spray volume should be increased within the recommended range to ensure complete coverage. (*suppression only).

10.2.3 PURPLE LOOSESTRIFE CONTROL

- DO NOT TREAT PLANTS OVER OPEN WATER. SHARDA GLYPHOSATE 360 is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using hand-held equipment, spray-to-wet.
- For wiper applications, see section 9.12
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

10.3 SELECTIVE APPLICATION FOR ALL NON-CROPLAND USES

Selective equipment such as **WIPER** and **ROLLER** applicators can be used to control emerged weeds in non-crop areas and tree plantings. See "**Selective Equipment**" (section 9.12) for more information.

10.4 TURF GRASS

When applied as directed, under conditions described, this product controls most existing vegetation. Apply this product at rates specified in the "**Weed Control in Non-Cropland Areas**" (section 10.1).

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth given in "**Annual Weed Control**" (section 7.1) and "**Perennial Weed Control**" (section 8.1). Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray and proper translocation into underground plant parts. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed

for 7 days after application to allow proper translocation into underground plant parts.

For maximum control of existing vegetation, delay establishment to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. Desirable turfgrasses may be established following the above procedures.

10.5 INJECTION APPLICATIONS - FOR ALL NON-CROPLAND USES

Woody vegetation may be controlled by injection application of this product. Apply using suitable equipment, which must penetrate into living tissue, at a rate of at least 0.5 mL (either undiluted or 1:1 with water) per 5cm tree diameter at breast height (DBH). The cuts should be spaced evenly around the tree and below all major branches. Application may be made at any time of year, except when cold temperatures prevent adequate penetration of injection equipment, or in the spring during periods of heavy sap flow. Control of tree species with tree diameters greater than 20 cm may not be acceptable at this rate.

Total control may not be evident for 1-2 years following treatment.
A partial list of species controlled includes:

ALDER

Alnus spp

HEMLOCK

Tsuga spp.

BIRCH

Betula spp.

MAPLE*

Acer spp.

CEDAR

Thuja spp.

PINE

Pinus spp.

CHERRY

Prunus spp.

POPLAR

Populus spp.

DOUGLAS FIR

Pseudotsuga spp.

WILLOW

Salix spp

* This treatment may only provide suppression of Big-Leaf Maple. Late fall applications will provide optimum suppression of Big-Leaf Maple

10.6 CUT STUMP APPLICATION

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Because the treatment uses a concentrated solution, application must be made using low-pressure equipment e.g. squirt bottle or similar device. This product must be applied immediately to the surface of the freshly cut stump i.e. within 5 minutes for optimum control at the

prescribed rates. Only the cambial tissues of the cut surface should be treated. Apply the herbicide solution at a rate equivalent to at least 0.5 mL product for every 5cm DBH. Do not cover the remaining area nor any exposed roots, as this product does not penetrate bark well. This treatment may be used at any time of year, except during periods of heavy sap flow or when low temperatures prevent solution application due to freezing. A water soluble colourant may be added to the solution as a means of indicating which surfaces have been treated. Total control may not be evident until 1-2 years after treatment.

See the “**Injection Applications**” (section 10.5) of this label for a partial list of species controlled.

ENSURE® Dry Flowable Herbicide

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass in spring and durum wheat.

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA (INCLUDING THE PEACE RIVER REGION) ONLY

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENT: Quinclorac..... 75% DF

REGISTRATION NO. 32138

PEST CONTROL PRODUCTS ACT

IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT, CALL COLLECT, DAY OR NIGHT, 1-613-996-6666

**CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

Distributed by:

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg – 10 kg

GENERAL INFORMATION

ENSURE Dry Flowable Herbicide is a dry flowable herbicide for selective post-emergence control of green foxtail (including Group 1 and Group 3 resistant biotypes), volunteer flax, cleavers, and barnyard grass in hard red spring, Canadian prairie spring, durum, Canada Western extra strong wheats.

ENSURE Dry Flowable Herbicide is a herbicide with mainly systemic action. Uptake into the plant occurs through both the foliage and root system. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in inconsistent control of weeds growing underneath.

Visual symptoms of weed control of **ENSURE Dry Flowable Herbicide** may take up to two weeks following application to develop. These symptoms include initial twisting to stunting, reddening and chlorosis about 14 days followed by necrosis and death about 21 days after application. Even though **ENSURE Dry Flowable Herbicide** symptoms may take some time to develop, competition from the weeds treated with **ENSURE Dry Flowable Herbicide** is eliminated soon after application.

DIRECTIONS FOR USE

Application Rate and Timing for Wheat

DO NOT apply using aerial application equipment.

Apply **ENSURE Dry Flowable Herbicide** at 135-165 g/ha when weeds are small and actively growing. **ENSURE Dry Flowable Herbicide** will control the weeds at the timing detailed in **Table 1**. **ENSURE Dry Flowable Herbicide** can be applied to wheat at the maximum application rates and timing detailed in **Table 1**.

Use the 135 g/ha rate ONLY for control of volunteer flax, barnyard grass, cleavers, lighter infestations of green foxtail and *suppression of annual and perennial sow-thistle*. Use the higher rate of 165 g/ha for control of heavier infestations of green foxtail.

DO NOT apply **ENSURE Dry Flowable Herbicide** to any field more often than every second year. This practice must be respected in order to avoid potential injury to future rotational crops, to minimize the potential for carryover and accumulation of soil residues, and to reduce the selection pressure which could contribute to the development of resistant biotypes.

Early treatment of weeds with **ENSURE Dry Flowable Herbicide** is important to maximize crop yield potential through elimination of early weed competition. Some initial crop injury may be observed after application, but this is usually outgrown and should not affect crop yield.

TABLE 1: WEED APPLICATION TIMING TABLE

WEED	RANGE
Green foxtail	1 - 5 leaf (max 2 tillers)
Volunteer flax	1 - 8 cm.
Cleavers	1 - 3 whorls
Barnyard grass	1 - 5 leaf
CROP	
Wheat (spring and durum)	1 - 5 leaf

All leaf stages listed above refer to true leaves.

SPRAYING INSTRUCTIONS

Ground Application

Use sprayers equipped with standard flat fan pesticide nozzles with a spray volume of 100 L/ha at a constant pressure of 275-425 kPa. Tilt spray nozzles 45 degrees forward to ensure better coverage. The use of 50 mesh strainers and screens is recommended.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) fine classification. Boom height must be 60 cm or less above the crop or ground.

ADDITIVES

Always use **MERGE** adjuvant at 1.0% v/v for optimum performance of **ENSURE Dry Flowable Herbicide**.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

TANK MIX COMBINATIONS:

For the appropriate rate of **ENSURE Dry Flowable Herbicide**, refer to the Application Rate and Timing section of the label.

Broadleaf Weed Control

Although **ENSURE Dry Flowable Herbicide** provides control of several broadleaf weeds, a tank mix with a broadleaf compound is required to give broad spectrum broadleaf weed control in wheat.

For additional control of broadleaf weeds in wheat, **ENSURE Dry Flowable Herbicide** can be tank mixed with any of the broadleaf herbicides listed in **Table 2**. When tank mixing **ENSURE Dry Flowable Herbicide** with these broadleaf herbicides, a slight reduction in control of green foxtail may be observed. The level of green foxtail control may be improved by using the 165 g/ha rate of **ENSURE Dry Flowable Herbicide** in the tank mixture.

Refer to **Table 2** for appropriate use rates and timing of crop applications. Always refer to the broadleaf herbicide or tank mix partner label(s) for additional precautions, restrictions, use instructions and recropping information.

Wild Oat Control

For control of wild oats when populations are between 1-200 plants per square metre and certain broadleaf weeds, **ENSURE Dry Flowable Herbicide** can be tank mixed with **AVENGE 200-C** herbicide at the rate of 3.5 L/ha and one of the broadleaf herbicides as listed in **Table 2**. **USE ONLY ON SPRING WHEAT VARIETIES LISTED ON THE AVENGE 200-C HERBICIDE LABEL.**

AVENGE 200-C herbicide can cause some crop injury. Refer to the **Table 2** for appropriate use rates and timing of crop application. Always refer to both the **AVENGE 200-C** herbicide and the broadleaf herbicide label for additional precautions, restrictions and use instructions.

TABLE 2: TANK MIX OPTIONS FOR ENSURE DRY FLOWABLE HERBICIDE ON WHEAT

Crop	ENSURE Rate (g/ha)	Tank Mix Partner	Rate	Crop Stage	Weeds Controlled
Wheat (spring and durum)	135-165	Buctril M	1.0 L/ha	2-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on Buctril M label.
		2,4-D Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on 2,4-D Amine label.
		2,4-D Ester (assume 500 series)	0.840-1.1 L/ha	4-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on 2,4-D Ester label.
		MCPA Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on MCPA Amine label.
		MCPA Ester (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on MCPA Ester label.
		Refine Extra¹	20 g/ha	2-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on Refine Extra label.
		Express Pack¹ (Express + 2,4-D)	10 g/ha + 0.625 L/ha	3-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on Express Pack label.
Wheat (spring only)	135-165	Avenge 200-C	3.5 L/ha	1-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Wild oats as listed on Avenge 200-C label.
		Avenge 200-C + Buctril M	3.5 L/ha + 1.0 L/ha	2-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on Buctril M label. Wild oats as listed on Avenge 200-C label.
		Avenge 200-C + 2,4-D Ester (assume 500 series)	3.5 L/ha + 0.840-1.1 L/ha	4-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on 2,4-D Ester label. Wild oats as listed on Avenge 200-C label.
		Avenge 200-C + MCPA Ester (assume 500 series)	3.5 L/ha + 0.840-1.1 L/ha	3-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on MCPA Ester label. Wild oats as listed on Avenge 200-C label.
		Avenge 200-C + Refine Extra¹	3.5 L/ha + 20 g/ha	2-5 leaf	ENSURE Dry Flowable Herbicide - see Table 1. Broadleaf weeds listed on Refine Extra label. Wild oats as listed on Avenge 200-C label.

¹Addition of surfactants other than Merge adjuvant is not required.

Do not delay spraying broadleaf weeds if grassy weeds are not in the correct stage for treatment. If green foxtail, wild oats and broadleaf weeds are not in the correct stages for treatment, apply separate applications of each herbicide timed to control the required spectrum of weeds. Use **MERGE** adjuvant only with all tank mixtures.

RECROPPING

Due to the residual activity of **ENSURE Dry Flowable Herbicide** in the soil, land treated with **ENSURE Dry Flowable Herbicide** cannot be rotated to crops other than specified in **Table 3**. To avoid injury to rotational crops, the minimum recropping intervals in **Table 3** must be followed.

TABLE 3: MINIMUM RECROPPING INTERVALS

CROP	MINIMUM RECROPPING INTERVAL (Months)	NOTES
Wheat* (spring, durum) Spring barley*	0 0	These crops can be re-planted in the same season as ENSURE Dry Flowable Herbicide applications.
Field peas Sunflowers	10 10	
Flax Lentils	10 10	These crops and the crops listed above can be planted two years following application of ENSURE Dry Flowable Herbicide .

*In the event of crop failure, only spring or durum wheat or spring barley may be reseeded in fields treated with **ENSURE Dry Flowable Herbicide**.

ENSURE Dry Flowable Herbicide should not be used on land where potatoes or vegetables are part of the rotation.

The company recommends that a field bioassay (a test strip grown to maturity) be conducted the year before growing any crops other than those listed in **Table 3**.

On lighter soils with low organic matter or under dry conditions, some crop injury may occur particularly in flax and lentils but will not reduce yield. Under these conditions, the minimum recropping interval for flax and lentils should be extended by 12 months.

Refer to the broadleaf or AVENGE 200-C herbicide label for specific additional recropping restrictions.

RESTRICTIONS AND LIMITATIONS

- Do not apply **ENSURE Dry Flowable Herbicide** when weather conditions may cause spray drift from treated areas to adjacent crops. Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes and vegetables will be injured by spray drift of **ENSURE Dry Flowable Herbicide**.
- Do not treat any crops other than wheat.

3. Do not apply **ENSURE Dry Flowable Herbicide** to wheat under seeded to forages.
4. Do not apply **ENSURE Dry Flowable Herbicide** to wheat that has been subjected to stress from conditions such as frost, hail damage, flooding, drought, extended cold period, etc.
5. Rainfall within 6 hours after application may reduce effectiveness of spray.
6. When **ENSURE Dry Flowable Herbicide** is applied beyond the recommended growth stages, limited crop injury and/or unsatisfactory weed control may result.
7. Cool weather conditions or drought will delay **herbicide** activity and if prolonged, may result in poor weed control.
8. Do not use **ENSURE Dry Flowable Herbicide** with additives, pesticides or fertilizers not specifically recommended on this label.
9. Allow 4 days between application of **ENSURE Dry Flowable Herbicide** and any other chemical not recommended as a tank mix combination on this label.
10. **ENSURE Dry Flowable Herbicide** must not be applied within 77 days of harvest of wheat.
11. Apply using ground equipment only. DO NOT apply using aerial application equipment.
12. Overspray or drift into important wildlife habitats such as shelterbelts, wetlands, woodlots, vegetated ditch, ponds and lake banks and other cover on the edges of fields should be avoided. A 10-metre buffer zone should be observed adjacent to aquatic habitats such as streams, ponds, rivers and lakes and to areas that drain into these habitats. When a tank mixture is used, consult the label of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.
13. Do not graze the treated crops or cut for hay within 77 days of application.
14. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats.

Buffer Zones for the Protection of Terrestrial Habitats from Spray Drift of Quinclorac

Method of application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitats
Field Sprayer	Durum and spring wheat, canary seed	4
	Spring barley Canola - Brassica napus (conventional, Clearfield, LibertyLink and Roundup	3

	Ready varieties), Canola - Brassica juncea (conventional, Clearfield, LibertyLink and Roundup Ready varieties) and Tame mustard (brown and oriental)	
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For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING

1. Thoroughly clean the sprayer prior to use. For appropriate cleaning instructions, refer to the label of the product sprayed previous to application of **ENSURE Dry Flowable Herbicide**.
2. Fill the clean spray tank half full with clean water. Start agitation or by-pass system. Agitation should be running during the entire mixing procedure.
3. Add the correct amount of **ENSURE Dry Flowable Herbicide** and agitate 2 to 3 minutes.
4. Add the correct amount of broadleaf herbicide, followed by **AVENGE 200-C** herbicide, if required. When mixing **ENSURE Dry Flowable Herbicide** with **EXPRESS PACK**, **EXPRESS** herbicide must be completely in suspension in the spray tank prior to adding **2,4-D** herbicide.

NOTE: On repeat tank loads of either **EXPRESS PACK** or **REFINE EXTRA** herbicide, prepare an **EXPRESS**/water or **REFINE**/water slurry in a separate container with clean water before adding to the spray tank.

5. Add the correct amount of **MERGE** adjuvant and agitate 2 to 3 minutes.
6. Add remainder of water to the spray tank and maintain sufficient agitation during mixing and spraying to ensure a uniform spray mixture.
7. For sprayer clean-up, refer to the sprayer clean-up section.
8. Consult the broadleaf or **AVENGE 200-C** herbicide label for additional application instructions, use precautions and recropping information.

SPRAYER CLEAN-UP

Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes, tomatoes and vegetables are particularly sensitive to **ENSURE Dry Flowable Herbicide**. To avoid injury to subsequent crops other than wheat, the sprayer should be thoroughly cleaned immediately after use and prior to spraying other crops by performing the following steps:

1. Following spray application, drain any remaining spray solution, then flush the tank, boom and hoses with clean water until any visible residues are removed. (Repeat step 1, if necessary.) **DO NOT CLEAN SPRAYER NEAR DESIRABLE VEGETATION OR NEAR WELL OR WATER SOURCE.**

2. Completely fill spray tank with clean water while adding 1 litre of household ammonia (containing 3% ammonia) per 100 litres of water or a commercially licensed tank cleaner such as **FINNISH**[®]. Reduce the amount of ammonia added proportionally if higher concentrations (%) of ammonia are used. Flush the solution through the boom and nozzles and then add more water to completely refill the tank. Agitate the solution for at least 15 minutes and then flush the boom and nozzles until the spray tank is empty.
3. Remove the nozzles and screens and clean separately in a bucket containing a cleaning agent and water.
4. Repeat step 2.
5. Thoroughly rinse the tank with clean water and flush the water through the boom.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **ENSURE Dry Flowable Herbicide** is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to **ENSURE Dry Flowable Herbicide** and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **ENSURE Dry Flowable Herbicide** or other Group 4 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. May irritate the skin. Avoid contact with skin.
3. Potential Skin Sensitizer.
4. Wash thoroughly after handling and before eating, drinking or smoking.

5. Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
8. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
9. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
10. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store in original, tightly-closed container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
5. Freezing will not harm **ENSURE Dry Flowable Herbicide**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

1. Follow provincial instruction for any required cleaning of the container prior to its disposal.
2. Make the empty container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

MERGE® is a registered trademark of BASF Canada Inc.

®All other products listed are registered trademarks of their respective companies.

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Canada T1V 1M7
1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. May irritate the skin. Avoid contact with skin.
3. Potential Skin Sensitizer
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
8. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
9. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
10. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
11. **As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.**

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store in original, tightly-closed container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
5. Freezing will not harm **ENSURE Dry Flowable Herbicide**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

1. Follow provincial instruction for any required cleaning of the container prior to its disposal.
2. Make the empty container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

2020-03-10 (revised 2020-05-25)
2020-0574

GROUP

9

HERBICIDE

DYNO GLYPHOSATE® 360

HERBICIDE
AGRICULTURAL AND INDUSTRIAL
Solution



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L

ACTIVE INGREDIENT: Glyphosate, 360 grams acid equivalent per litre present as the isopropylamine salt

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

EMERGENCY TELEPHONE NUMBER
IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL
CANUTEC FREE DAY OR NIGHT, 1-613-996-6666

Registration No. 33087 Pest Control Products Act

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

READ ENTIRE LABEL CAREFULLY BEFORE USE

DYNO GLYPHOSATE 360 is a non-selective, non-residual herbicide containing 360 g/L glyphosate (free acid) as isopropylamine salt, formulated as a water-soluble liquid. It is used for the control of most herbaceous weeds in agricultural and industrial sites. The product is absorbed through the foliage and translocated throughout the plant down to the root system. Visible symptoms such as gradual wilting and yellowing are usually obvious within 2 to 4 days of application to annual weeds, but may not be apparent for 7 to 10 days on perennial weeds.

GENERAL PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- MAY CAUSE EYE IRRITATION
- HARMFUL IF SWALLOWED
- AVOID CONTACT WITH EYES AND SKIN
- WASH HANDS AND EXPOSED SKIN BEFORE EATING, DRINKING, OR SMOKING, AND AFTER WORK

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S contact 1-888-931-2530 or www.croplife.ca.

FOR GOOD AGRICULTURAL PRACTICE:

- WEAR GLOVES, COVERALLS, AND EYE PROTECTION DURING MIXING, LOADING, CLEANUP, AND REPAIR PROCEDURES
- WASH SPLASHES FROM SKIN AND EYES IMMEDIATELY

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

EMERGENCY TELEPHONE NUMBER:

IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666 OR *666 FROM A CELL PHONE.

TOXICOLOGICAL INFORMATION

Treat Symptomatically.

ENVIRONMENTAL PRECAUTIONS

DYNO GLYPHOSATE 360 is toxic to aquatic organisms and non-target terrestrial plants. Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment. Avoid all drift or contact with vegetation for which treatment is not intended as damage or destruction may occur. Observe buffer zones specified under **Directions for Use**.

- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic, or plastic-lined containers. **DO NOT MIX, STORE, OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or the spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury if ignited by open flame, spark, welder's torch, lighted cigarette, or other ignition source.

STORAGE

KEEP AWAY FROM FOOD, DRINK, AND ANIMAL FEEDSTUFFS. KEEP ONLY IN ORIGINAL CONTAINER, TIGHTLY CLOSED.

IN CASE OF SPILL:

Contact the provincial regulatory authorities and Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) in case of spill, and for clean-up of spills. For environmental concerns call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

DISPOSAL OF CONTAINERS

RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location for the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsing to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the distributor and the provincial regulatory agency in case of spill, and for clean-up of spills.

RETURNABLE CONTAINERS

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

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RETURNABLE-REFILLABLE CONTAINERS

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

NOTICE TO USER:

This control product is to be used only in accordance with the directions on this label. It is an offense under the *Pest Control Products Act* to use a control product in a way that is inconsistent with the directions on the label.

GROUP

9

HERBICIDE

DYNO GLYPHOSATE[®] 360

**HERBICIDE
AGRICULTURAL AND INDUSTRIAL
Solution**



CAUTION IRRITANT

NET CONTENTS: 10, 100 & 1,000 L

ACTIVE INGREDIENT: Glyphosate 360 g/L grams acid equivalent per litre present as the isopropylamine salt

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

EMERGENCY TELEPHONE NUMBER
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CANUTEC, FREE DAY OR NIGHT, 1-613-996-6666

Registration No. 33087 Pest Control Products Act

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

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TOXICOLOGICAL INFORMATION

Treat Symptomatically.

ENVIRONMENTAL HAZARDS

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PHYSICAL OR CHEMICAL HAZARDS

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STORAGE

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NOTICE TO USER:

This control product is to be used only in accordance with the directions on this label. It is an offense under the *Pest Control Products Act* to use a control product in a way that is inconsistent with the directions on the label.

PRECAUTIONS

Avoid contact with desirable vegetation by direct application or spray drift as severe injury or destruction may result. Avoid drift or overspray to non-target vegetation and wildlife habitats.

DO NOT USE IN GREENHOUSES.

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

The restricted entry interval is 12 hours after application for all agricultural uses.

Drain and clean sprayer and parts immediately after using this product.

Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Reduced results may occur if water which contains suspended soil is used; examples are water from ponds and ditches. Poor control may also occur when treating weeds heavily covered with dust.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

GENERAL PRODUCT INFORMATION

DYNO GLYPHOSATE 360 is a water-soluble herbicide for non-selective weed control. DYNO GLYPHOSATE 360 is applied as a foliar spray for the control of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

DYNO GLYPHOSATE 360 moves through the plant from the point of foliage contact into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds effects may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down the activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant, which advances to complete browning of above ground growth and deterioration of underground plant parts.

DYNO GLYPHOSATE 360 does not provide residual weed control. For subsequent residual weed control, apply a registered residual herbicide. Read and carefully observe cautionary statements and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. **Do not apply if rainfall is forecast for the time of application.**

DIRECTIONS FOR USE

GENERAL APPLICATION NOTES:

Results are best when weeds are actively growing. If weeds have been mowed, allow to return to recommended growth stage. Delay application until vegetation has emerged to the stage described for the control of such vegetation under the ANNUAL and PERENNIAL WEED CONTROL charts of this booklet to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or rootstocks of perennials will not be affected by the spray and will continue to grow. For this reason, best control of most perennial weeds is obtained when the treatment is made at the late growth stages approaching maturity.

Always use higher rates of DYNO GLYPHOSATE 360 per hectare within the recommended range when weed growth is heavy or dense or weeds are growing in an undisturbed (uncultivated) area. **Do not treat weeds under poor growing conditions such as drought, flooding, frost, high temperatures, disease or insect damage as reduced weed control may result.** Reduced results may also occur when treating weeds heavily covered with dust. Heavy rainfall immediately after application may wash the product off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

DYNO GLYPHOSATE 360 should only be mixed with products recommended on this label. Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

TANK MIXES

DYNO GLYPHOSATE 360 may be used with the following surfactants: Agral 90[®], Ag-Surf[®], Companion[™]. See charts on **TANK MIXES FOR ANNUAL** and for **PERENNIAL WEED CONTROL**.

DYNO GLYPHOSATE 360 may be used with the following herbicides:

Banvel[®], Oracle[®], Pardner[®], Pursuit[®], 2,4-D low volatile ester or amine formulations: See section on **MINIMUM AND ZERO TILLAGE TANK MIXES**.

Princep Nine-T[®], Simadex[®]: See section on **TREE, VINE, AND BERRY CROPS**.

DyCler 480[®], Simazine 80W[®], Simadex[®] Flowable, 2,4-D amine: See section on **NONCROPLAND AND INDUSTRIAL USES**.

Always refer to the surfactant and herbicide labels for specific instructions regarding the use of that product.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Trade Name

Agral 90[®], DyCler[®], Princep Nine-T[®]
Ag-Surf[®]
Banvel[®], Pursuit[®]
Companion[™]
Pardner[®], Simadex[®]
Oracle

Trademark Owners

Syngenta
IPCO
BASF
Dow Chemical Co.
Bayer CropScience
Gharda USA, Inc

VEGETATION CONTROLLED

DYNO GLYPHOSATE 360 controls many annual and perennial grasses, broadleaf weeds and woody brush and trees when applied as recommended and under the conditions described. For information on how to control specific weeds, including herbicide rate, refer to the ANNUAL WEED CONTROL and PERENNIAL WEED CONTROL charts of this label. The following is a partial list of the weeds controlled:

Table 1: Annual weed control by DYNO GLYPHOSATE 360®

Weed Type: Annual Weeds	Genus and Species
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Broomcorn millet	<i>Panicum miliaceum</i>
Cheatgrass	<i>Bromus tectorum</i>
Chickweed	<i>Stellaria media</i>
Cocklebur	<i>Xanthium strumarium</i>
Corn Spurry	<i>Spergula arvensis</i>
Common Lamb's quarters	<i>Chenopodium album</i>
Cow Cockle	<i>Saponaria vaccaria</i>
Dodder	<i>Cuscuta spp.</i>
Downy brome	<i>Bromus tectorum</i>
Eastern black flowering nightshade	<i>Solanum ptycanthum</i>
Fall panicgrass	<i>Panicum dichotomiflorum</i>
Fleabane (Canada)	<i>Erigeron canadensis</i>
Flixweed	<i>Descurainia sophia</i>
Giant foxtail	<i>Setaria faberii</i>
Green foxtail	<i>Setaria viridis</i>
Green Smartweed	<i>Polygonum scabrum</i>
Hairy crabgrass	<i>Digitaria sanguinalis</i>
Hempnettle	<i>Galeopsis tetrahit</i>
Kochia	<i>Kochia scoparia</i>
Lady's thumb	<i>Polygonum persicaria</i>
Narrow-leaf hawk's beard	<i>Crepis tectorum</i>
Narrow-leaf vetch	<i>Vicia angustifolia</i>
Night flowering catchfly	<i>Silene noctiflora</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Persian darnel	<i>Lolium persicum</i>
Prickly lettuce	<i>Lactuca scariola</i>
Ragweed (common)	<i>Ambrosia artemisiifolia</i>

Weed Type: Annual Weeds	Genus and Species
Redroot Pigweed	<i>Amaranthus retroflexus</i>
Russian thistle	<i>Salsola pestifier</i>
Shepherd's purse	<i>Capsella bursa-pastoris</i>
Smooth crabgrass	<i>Digitaria ischaemum</i>
Smooth Pigweed	<i>Amaranthus hybridus</i>
Sowthistle (annual)	<i>Sonchus oleraceus</i>
Stinkweed	<i>Thlaspi arvense</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Volunteer barley	<i>Hordeum spp.</i>
Volunteer canola	<i>Brassica spp.</i>
Volunteer corn	<i>Zea mays</i>
Volunteer flax	<i>Linum spp.</i>
Volunteer wheat	<i>Triticum spp.</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
Wild mustard	<i>Sinapsis arvensis</i>
Wild oats	<i>Avena fatua</i>
Wild tomato	<i>Solanum triflorum</i>
Yellow foxtail	<i>Setaria glauca</i>

Table 2: Perennial weeds control by DYNO GLYPHOSATE 360®

Weed Type: Perennial Weeds	Genus and Species
Alfalfa	<i>Medicago sativa</i>
Bluegrass (Canada)	<i>Poa compressa</i>
Bluegrass (Kentucky)	<i>Poa pratensis</i>
Brome grass (smooth)	<i>Bromus inermis</i>
Canada thistle	<i>Cirsium arvense</i>
Common cattail	<i>Typha latifolia</i>
Common milkweed	<i>Asclepias syriaca</i>
Cottontop	<i>Eriophorum chamissonis</i>
Curled dock	<i>Rumex crispus</i>
Dandelion	<i>Taraxacum officinale</i>
Foxtail barley	<i>Hordeum jubatum</i>
Hemp dogbane	<i>Apocynum cannabinum</i>
Hoary cress	<i>Cardaria draba</i>
Japanese knotweed	<i>Polygonum cuspidatum</i>
Perennial sowthistle	<i>Sonchus arvensis</i>
Poison ivy	<i>Rhus radicans</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Quackgrass	<i>Elytrigia repens</i>
Toad flax	<i>Linaria vulgaris</i>
Wormwood (Absinth)	<i>Artemisia absinthium</i>
Yellow Nutsedge	<i>Cyperus esculentus</i>

Table 3: Woody weeds, bush and tree control by DYNO GLYPHOSATE 360®

Weed Type: Bush and Trees	Genus and Species
Alder	<i>Alnus spp.</i>
Birch	<i>Betula spp.</i>
Broadleaf meadowsweet	<i>Spiraea latifolia</i>
Canadian rhododendron	<i>Rhododendron canadense</i>
Cedar	<i>Thuja spp.</i>
Cherry	<i>Prunus spp.</i>
Douglas fir	<i>Pseudotsuga spp.</i>
Hemlock	<i>Tsuga spp.</i>
Maple	<i>Acer spp.</i>
Mountain-fly honeysuckle	<i>Lonicera villosa</i>
Pine	<i>Pinus spp.</i>
Poplar	<i>Populus spp.</i>
Raspberry	<i>Rubus spp.</i>
Salmonberry	<i>Rubus spectabilis</i>
Sheep laurel	<i>Kalmia angustifolia</i>
Snowberry (western)	<i>Symphoricarpos occidentalis</i>
Sweet fern	<i>Comptonia peregrina</i>
Willow	<i>Salix spp.</i>
Withrod	<i>Viburnum cassinoides</i>

Resistance Management Recommendations:

For resistance management, DYNO GLYPHOSATE 360[®] Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to DYNO GLYPHOSATE 360[®] Herbicide and other Group 9 herbicides. The resistance biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of DYNO GLYPHOSATE 360[®] Herbicide or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance contact Farmer's Business Network Canada, Inc. at 1-844-200-3276.

APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS

GROUND BOOM AND BOOMLESS SPRAYERS

Mixing: For field or industrial type sprayers, fill the spray tank with one half the required amount of water. Add the proper amount of DYNO GLYPHOSATE 360[®] herbicide (see appropriate chart) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent any excessive foaming. Remove the hose from the tank immediately after filling to avoid back siphoning into water source (a one-way valve should be installed to prevent back siphoning). Use of mechanical agitators may cause excessive foaming. By-pass lines should terminate at the bottom of the tank.

Application: Use flat fan nozzles in boom sprayers. To control perennial weeds, woody brush, and trees as listed, apply DYNO GLYPHOSATE 360[®] in 50 to 300 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure. To control annual weeds as listed, apply DYNO GLYPHOSATE 360[®] in 50 L to 100 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure.

KNAPSACK SPRAYERS, HAND HELD & HIGH-VOLUME EQUIPMENT

High volume spraying utilizes handguns or other suitable nozzle arrangements to apply a directed spray to weeds, woody brush, and trees. Use coarse sprays only.

Mixing: Mix the proper amount of DYNO GLYPHOSATE 360 with water in a large container. Fill the sprayer with the mixed solution. Unless otherwise stated, make a 1% solution of DYNO GLYPHOSATE 360 in water (1 L of DYNO GLYPHOSATE 360 in 100 L of water). A 2% solution (2 L of DYNO GLYPHOSATE 360 in 100 L of water) should be used on harder to control perennials.

Application: Spray coverage should be uniform and complete. Apply on a spray-to-wet basis. Do not spray to the point of runoff. Hand gun application should be properly directed to avoid spraying desirable plants.

MIST BLOWERS

For control of woody weeds, brush, and trees listed in the VEGETATION CONTROLLED list, use the recommended rate of DYNO GLYPHOSATE 360 in at least 200 L of water per hectare.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

WIPER, WICK AND ROLLER EQUIPMENT

These applicators apply DYNO GLYPHOSATE 360 solution directly onto the weeds by contacting the weed with an absorbent material containing the herbicide solution. Weeds should be a minimum of 15 cm above the desired vegetation to prevent contact of DYNO GLYPHOSATE 360 with the desired vegetation.

Mixing: Mix the proper amount of DYNO GLYPHOSATE 360 with water in a large container. Use this mixed solution in the wiper, wick or roller equipment.

Application: These applicators can be used to control weeds in:

- Industrial sites, tree plantings, and non-crop sites as specified.
- The following agricultural crops:
 - Apple, cherry, peach, pear and plum orchards, grape vineyards, soybeans, dry beans, strawberries, and cranberries (note: applications must be made before initial pod set in soybeans and dry beans).

The applicator should be adjusted so that the contact point of the wiper, roller, or wick is at least 5 cm above the desirable vegetation. Droplets or foam of the DYNO GLYPHOSATE 360 solution settling on desirable vegetation may result in discoloration, stunting or destruction. Best results are obtained when more of the weed is exposed to the herbicide solution. It is recommended that two applications be made in opposite directions, if possible. Weeds not contacted will not be affected. This may occur in dense clumps, severe infestation, or when the height of the weeds varies so that not all weeds are contacted. In these instances, a repeat treatment may be necessary.

AVOID CONTACT WITH DESIRABLE VEGETATION

Wiper, Wick, Roller Application Notes:

- Maintain wiper equipment in good operating condition. Care must be taken with all types of wipers to ensure that the absorbent material does not become oversaturated, causing the herbicide to drip onto desirable vegetation.
- Avoid leakage or dripping onto desirable vegetation.
- Adjust height of wiper applicator to ensure proper contact with weeds.
- Keep wiping surfaces clean.
- Maintain recommended roller speed on roller applicators while in use.
- DO NOT use wiper equipment when weeds are wet.
- DO NOT operate equipment at ground speeds less than 4 or greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to ensure good coverage of weeds.
- Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.
- Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended DYNOL GLYPHOSATE 360 herbicide solution directly to the weed.
- Mix only the amount of solution to be used during a one-day period, as reduced activity may result from use of leftover solution. Thoroughly drain and clean all equipment immediately after use.

AERIAL APPLICATION

Aerial Application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h (preharvest) or 8 km/h (rights-of-way) at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572,1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Directions for Use (for additional information see section on Aerial Application for Industrial Rights-of-Way ONLY)

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Aerial Use Precautions

Apply only when weather conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following: Volume: Apply the recommended rate in a spray volume of 30-100 L/ha.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of DYNO GLYPHOSATE 360 accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

BUFFER ZONES:

Use of the following spray methods or equipment DO NOT require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies). Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Agricultural, forestry and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
		Aquatic habitats	Terrestrial habitats
Agricultural crop system and ground boom application method			
Pre-seeding applications for cranberry, filberts, hazelnut and all other crops. Established pasture and summer fallow.	1	1	1
Filberts or hazelnut	4	1	1
Strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)	2	1	2
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, forage grasses and legume including seed production	3	1	2
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)	4	1	2
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes	3	1	3
Agricultural crop system and airblast application method (including mist blower)			
Pasture	1	20	30
Turfgrass (Prior to establishment or renovation)	2	25	35
Forest plant system and ground boom application method			
<i>Forest and woodlands > 500 ha</i> Site preparation	2	1	NR
Forest plant system and airblast application method (including mist blower)			
<i>Forest and woodlands > 500 ha</i> Site preparation	2	1	NR
Non-cropland system and ground boom application method			
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	3*
Non-cropland system and airblast application method (including mist blower)			
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	30*

Agricultural crop system and aerial application method	Wing type			
Crops for pre-seeding treatments only	Fixed and rotary wing	1	15	20
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30
Forage grasses and legume including seed production	Fixed and rotary wing	1	20	40
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40
Summer fallow	Fixed wing	1	20	45
	Rotary wing	1	20	40
Pasture	Fixed wing	1	30	70
	Rotary wing	1	30	55
Forestry system and aerial application method				
<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	10	NR
	Rotary wing	2	1	NR
<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	5	NR
	Rotary wing	2	1	NR
Non-cropland system and aerial application method				
Non-crop land and industrial uses: rights-of way areas only	Fixed wing	3	100	NR
	Rotary wing	3	60	NR

* Buffer zones for the protection of terrestrial habitats are not required for forestry uses or for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

NR = Not Required

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

AGRICULTURAL AND CROPLAND USES

The following are use situations for DYNO GLYPHOSATE 360 herbicide. The type of vegetation present and the use situation will dictate the choice of application equipment. Information on the equipment selected to apply DYNO GLYPHOSATE 360 can be found in the APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section. Use rates can then be selected from the ANNUAL and PERENNIAL WEED CONTROL charts.

PREPLANT TREATMENT

DYNO GLYPHOSATE 360 can be applied prior to planting of all crops for control of emerged weeds listed on the label. Ensure weeds are at the recommended growth stage at the time of application. Apply BEFORE seeding or transplanting crop.

SUMMER FALLOW

DYNO GLYPHOSATE 360 may be applied in summer fallow to control weeds listed on the label. Ensure weeds are at the recommended growth stage and actively growing at the time of application. Reduced control may result if weeds are drought stressed. Repeat treatments may be necessary to control later germinating weeds.

MINIMUM AND ZERO TILLAGE SYSTEMS (ALL FIELD CROPS INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES AND CORN)

DYNO GLYPHOSATE 360 may be applied before or after seeding but before crop emerges for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Weeds should be treated at the growth stage according to the ANNUAL and PERENNIAL WEED CONTROL charts. **DO NOT APPLY AFTER CROP EMERGENCE.**

Since DYNO GLYPHOSATE 360 does not provide residual control, application too far in advance of seeding may allow weeds to germinate between application and crop emergence.

MINIMUM AND ZERO TILLAGE TANK MIXES

DYNO GLYPHOSATE 360 Herbicide plus Pardner[®] (bromoxynil) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley, and oats. See chart on TANK MIXES for ANNUAL WEED CONTROL.

DYNO GLYPHOSATE 360 Herbicide plus Pursuit[®] can be applied before or after seeding, but prior to crop emergence in soybeans. DYNO GLYPHOSATE 360 herbicide will control emerged weeds listed on this label when applied as directed (see VEGETATION CONTROLLED lists). Pursuit[®] will control weeds germinating from seed. Add the recommended rates of both products in 100 L of water/ha following the instructions on the Pursuit[®] herbicide label.

Refer to the Pursuit[®] label for further information on weeds controlled, application directions, and use precautions. Only SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT and WINTER WHEAT may be planted the season following a Pursuit[®] application. Winter wheat may be planted the same year as a Pursuit[®] application to soybeans, but not earlier than 120 days after the application.

DO NOT APPLY AFTER CROP EMERGENCE.

**Table 4: DYNO GLYPHOSATE 360® TANK MIXES for ANNUAL WEED CONTROL:
Summer fallow & minimum tillage systems treatment rates**

TANK MIXTURES	RATE L/ha	WEEDS CONCONTROLLED++	COMMENTS: (Apply in 50-100 L/ha water; add 350 mL/ha surfactant)
DYNO GLYPHOSATE 360 + Banvel® or Oracle®	0.75 - 1.0 + 0.29	Volunteer cereals, wild oats, green foxtail, volunteer canola (rapeseed), wild mustard, flixweed*, lamb's quarters, lady's thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *DYNO GLYPHOSATE 360 applied at 1.0 L/ha rate only. **Suppression only. See other tank mixtures for control options.
DYNO GLYPHOSATE 360 + Pardner®	0.75 - 1.0 + 1.25	Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's thumb, stinkweed, wild buckwheat*, redroot pigweed**, kochia**, wild oats**	This tank mix for summer fallow use; and prior to planting wheat, oats, and barley in minimum tillage systems. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use DYNO GLYPHOSATE 360 at 1.0L/ha rate for wild buckwheat control. **1.0L/ha rate, suppression only. See other tank mixtures for control options.
DYNO GLYPHOSATE 360® + 2,4-D#	0.75 - 1.0 + 1.2	Volunteer cereals, wild oats*, green foxtail*, volunteer canola (rapeseed), wild mustard, Flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters**, Russian thistle**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use DYNO GLYPHOSATE 360 at 1.0 L/ha rate only for wild oat and green foxtail control. **Suppression only. See other tank mixtures for control options.

#0.56 kg ai/ha of 2,4-D. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

++For foxtail barley suppression, refer to chart on ANNUAL WEED CONTROL.

NOTE: All DYNO GLYPHOSATE 360 herbicide tank mixtures for annual weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf® and Companion™. Surfactant should be added at a rate of 350 mL per hectare in 50-100 L of clean water.

Table 5: DYNO GLYPHOSATE 360® tank mixtures for perennial weed control summer fallow or fall stubble

TANK MIXTURES	RATE L/ha	WEEDS CONTROLLED	COMMENTS:
DYNO GLYPHOSATE 360® + Banvel® or Oracle®	1.7 L/ha + 1.25 L/ha	Canada thistle, perennial sow thistle	Apply in 100-200 L/ha water; add 350 mL/ha surfactant Summer fallow: Cultivate in the spring and apply when majority of thistles are 15 to 25 cm tall, and before the bud stage. Cultivate 3 weeks after application. Fall stubble: Apply to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: All DYNO GLYPHOSATE 360® herbicide tank mixtures for perennial weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf®, or Companion™.

Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mix.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

FALL STUBBLE

Apply in the fall as a postharvest stubble treatment for control of perennial weeds including quackgrass and Canada thistle. Allow the Canada thistle and quackgrass to regrow to 20-25 cm tall. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frost prior to treatment may decrease control.

SPOT TREATMENT (IN CROP)

DYNO GLYPHOSATE 360 may be applied for the control of Canada thistle, quackgrass and other perennial weeds in forage crops, barley, wheat, oats, soybeans and legumes, including seed production. Treatments may be made up to heading of small grain, initial pod set on soybeans and emergence of seed heads. Avoid drift beyond the treated area.

Application can be made using a boom sprayer, knapsack, or high-volume equipment (see APPLICATION AND MIXING INSTRUCTIONS section). Applications should be made using the same growth stages as listed in the ANNUAL and PERENNIAL WEED CONTROL charts. Or, use a 1% solution for annul weeds and quackgrass and a 2% solution for other perennial weeds (a 1% solution equals 1 litre DYNO GLYPHOSATE 360® herbicide in 100 litres of spray solution). The 1% and 2% solutions should be applied to wet, but not to run off.

NOTE: THE CROP IN THE TREATED AREA WILL BE KILLED BY THE TREATMENT.

DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS BEFORE GRAZING IN, OR HARVESTING TREATED AREAS AS FORAGES.

FORAGE GRASSES AND LEGUMES

Use DYNO GLYPHOSATE 360[®] to control or suppress existing vegetation prior to emergence of legumes and grasses. If legumes and grasses are underseeded with a cover crop, DYNO GLYPHOSATE 360[®] must be applied prior to planting any cover crop.

PASTURE RENOVATION

DYNO GLYPHOSATE 360[®] may be used to control or suppress existing vegetation for zero tillage seeding of legume or grass pasture into established sod for renovation. Weed growth should be at least 20 cm high and most weed seeds should have germinated at the time of spraying.

FORAGE SEED PRODUCTION (FOR SPOT TREATMENT)

DYNO GLYPHOSATE 360[®] may be applied as a spot treatment for control of perennial weeds such as quackgrass and Canada thistle in seed fields. Apply to weeds at least 20-25 cm in height but before emergence of seed head.

The crop in the treated area will be killed. For this reason, take particular care to avoid drift outside the treated area.

PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, DANDELION, TOADFLAX and MILKWEED; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, dandelion, toadflax and common milkweed, and season-long control of perennial sow thistle, DYNO GLYPHOSATE 360[®] can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linolenic acid varieties), lentils, peas, dry beans and soybeans. DO NOT apply to crops grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tilling may interfere with harvest operations. **EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN THE ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.**

DYNO GLYPHOSATE 360[®] should be applied pre-harvest at 2.5 L/ha in 50 to 100 L/ha of clean water, by GROUND APPLICATION ONLY.

When to Apply: Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS chart for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7-14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Use Precautions: Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g. sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife, should be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

*** DO NOT apply using aerial application equipment ***

Table 6: Guidelines for timing of preharvest applications

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL INDICATORS
WHEAT, BARLEY, OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including glyphosate tolerant varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linolenic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour, pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

Refer to the general guidelines for aerial application as well as specific instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION

FOR PRAIRIE PROVINCES ONLY (Including INTERIOR AND PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators, and aerial application services, approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patternation) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 - 600 microns) or very coarse (600 - 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a DYNOL GYPHOSATE 360[®] aerial application training course.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24-month period. All pilots who do not meet the minimum experience standard must work under the direct daily supervision of a qualified pilot.

DIRECTIONS FOR USE

DYNOL GYPHOSATE 360[®] may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. DYNOL GYPHOSATE 360[®] can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linoleic acid varieties), lentils, peas, dry beans, and soybeans. DO NOT apply to any crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

DYNOL GYPHOSATE 360[®] should be applied at 2.5 L/ha in 20 - 50 L/ha of clean water with

aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS for visible indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 - 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Table 7: Guidelines for timing of preharvest applications (restricted use)

CROP(S)	PERCENT GRAIN MOISTURE	VISIBLE SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linoleic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
FORAGES	Not applicable	Normal stage for forage harvesting.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS (including glyphosate tolerant varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.

USE PRECAUTIONS:

AVOID DRIFT ON TO IMPORTANT WILDLIFE HABITATS. EXTREME CARE MUST BE TAKEN WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS.

Apply only in wind conditions in compliance with local and/or provincial regulations. Do not apply when other climatic conditions, including lesser wind velocities, will allow significant drift to occur.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that disperse spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. See # 1 of the NATURE OF RESTRICTION section for additional details.

Do not overspray or allow drift on to bodies of water, wetlands† and/or wetland vegetation (e.g., sloughs, swamps, bogs, marshes, potholes), shelterbelts, woodlots and other cover on the edge of fields.

IN ORDER TO REDUCE THE DRIFT HAZARD TO NON-TARGET PLANTS AND AQUATIC VEGETATION IN THE HABITATS LISTED ABOVE, DO NOT APPLY WITHIN 100 METRES OF THE EDGE OF ANY OF THESE HABITATS. Do not apply directly to roadside ditches, or apply under conditions that would favour drift into roadside ditches.

†A wetland is any land where the water table stands at or above the land surface for at least part of the year, and contains vegetation associated with wetlands such as bulrushes, sedges, cattails, etc.

Ensure uniform application - To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills.

PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.

The maintenance of an organic coating (paint) which meets aerospace specification MILC-38412 may prevent corrosion.

TREE, VINE, and BERRY CROPS

DYNO GLYPHOSATE 360[®] controls annual and perennial weeds in established vineyards or orchards, in blueberry, cranberry, and strawberry, or for site preparation prior to transplanting tree or vine crops. See chart on WEED CONTROL IN TREE, BERRY, and VINE CROPS for rate and time of application information.

This product does not provide residual or pre-emergent weed control. Repeat applications may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. For subsequent weed control, follow a program using residual herbicides or use repeated applications of DYNO GLYPHOSATE 360[®].

DO NOT APPLY MORE THAN 35 L OF DYNO GLYPHOSATE 360[®] HERBICIDE PER HECTARE PER YEAR. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF THE HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURE BROWN BARK CAN RESULT IN SERIOUS CROPDAMAGE.

Allow annual and perennial weeds that have been mowed, grazed, or cut, time to regrow to recommended growth stage for treatment.

Applications may be made with boom sprayer, shielded sprayers, hand held and high-volume orchard guns, or with wiper, wick, or roller equipment (orchards, vineyards, cranberry and strawberry only).

TREE PLANTING - Shelterbelts, Nursery Stock, Woody Ornamentals

DYNO GLYPHOSATE 360[®] may be applied to control annual and perennial weeds listed on this label. This may be used for site preparation prior to establishing plantations, or as a post directed spray in established plantations of the following species:

Table 8: Trees where DYNO GLYPHOSATE 360[®] may be applied to control

Deciduous Trees		Coniferous Trees	
Name	Genus and Species	Name	Genus and Species
Ash	<i>Fraxinus spp.</i>	Fir	<i>Abies spp.</i>
Caragana	<i>Caragana spp.</i>	Juniper	<i>Juniperus spp.</i>
Cherry	<i>Prunus spp.</i>	Pine	<i>Pinus spp.</i>
Elm	<i>Ulmus spp.</i>	Spruce	<i>Picea spp.</i>
Lilac	<i>Syringa spp.</i>	Yew	<i>Taxus spp.</i>
Maple	<i>Acer spp.</i>		
Mountain ash	<i>Sorbus americana</i>		
Poplar	<i>Populus spp.</i>		
Russian olive	<i>Elaeagnus spp.</i>		
Willow	<i>Salix spp.</i>		

SPRAY MAY CONTACT MATURE BROWN BARK ONLY.

Avoid contact with non-target plants, foliage, or suckers of established plantations.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

GLYPHOSATE TOLERANT CROPS

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA (I.E., VARIETIES WITH THE ROUNDUP[®] READY GENE).

WARNING: APPLY DYNO GLYPHOSATE 360[®] HERBICIDE ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to the **GENERAL PRODUCT INFORMATION, GENERAL APPLICATION NOTES,** and **APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS** sections.
- Apply DYNO GLYPHOSATE 360[®] herbicide in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visible yellowing may occur when DYNO GLYPHOSATE 360[®] herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

*** DO NOT apply using aerial application equipment ***

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

Table 9: Weed control in canola with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.825 – 1.875	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, wild buckwheat*, shepherd's purse*, cow cockle*, night-flowering catchfly*, smartweed*, storksbill*, flixweed*, narrow-leaf hawk's beard*, roundleaf, mallow* * *</p> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sowthistle, dandelion</p> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sowthistle* * * *</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure. Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use the 1.25 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd's purse, cow cockle and night-flowering catchfly at the 1-3 leaf stage of the crop or for control of smartweed at the 4-6 leaf stage.</p> <p>** A single application at the 1.25 L/ha rate is required. *** Sequential applications at the 1.25 L/ha rate are required. **** Sequential applications at the 1.25 L/ha rate are required or a single application of 1.875 L/ha.</p> <ul style="list-style-type: none"> • For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. • Maximum 2.5 L/ha is allowed for the post emergence use.

TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in glyphosate tolerant canola (i.e., varieties with the Roundup Ready Gene), apply a tank mixture of 0.28 L/ha of Lontrel® 360 with 1.25 L/ha of DYNO GLYPHOSATE 360® Herbicide, in 100 litres of water per hectare. Apply when canola is in the 2-6 leaf stage. Refer to the Lontrel® 360 and to the DYNO GLYPHOSATE 360® Herbicide labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

Lontrel® is a registered trademark of Dow AgroSciences LLC.

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

WARNING: APPLY DYNO GLYPHOSATE 360® HERBICIDE ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

*** DO NOT apply using aerial application equipment ***

Table 10: Weed control in soybean with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Use 100-200 L/ha water volumes)
2.5	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's thumb, Pennsylvania smartweed, eastern black flowering nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, milkweed*, yellow nutsedge*, fall panicum, wild proso millet	<p>A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment.</p> <p>This second application must be made no later than the flowering stage of the soybean.</p> <p>*Suppression only</p>
2.5 (x2)	First trifoliolate leaf stage through flowering	Perennial sowthistle, Canada thistle, wire-stemmed muhly	<p>A second (sequential) application of 2.5 L/ha will improve control in heavy weed infestations. If sequential applications of 2.5 L/ha are used they should be at least 2 weeks apart for best results on perennial weeds. This second application must be made no later than the flowering stage of the soybean. Perennial sowthistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. Wire-stemmed muhly should be 10-20 cm in height and actively growing. Plants not fully emerged at the time of application will escape the treatment.</p>

Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

Tank Mixtures for Roundup Ready Soybeans

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit® herbicide may be tank mixed with DYNO GLYPHOSATE 360® herbicide at a rate of 2.5 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit® and apply up to and including the 3rd trifoliate leaf stage of the Roundup Ready soybeans in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit® as per instructions on the Pursuit® label and then add DYNO GLYPHOSATE 360® herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of DYNO GLYPHOSATE 360® herbicide and Pursuit® herbicide on glyphosate tolerant soybeans.

Only one application per season of DYNO GLYPHOSATE 360® herbicide at 2.5 litres per hectare tank mixed with Pursuit® herbicide at 0.16 to 0.21 litres per hectare is permitted.

Refer to the Pursuit® herbicide label for further safety precautions and handling instructions.

NONCROPLAND AND INDUSTRIAL USES

When applied as recommended under the conditions described, DYNO GLYPHOSATE 360® will control weeds in the non-cropland and industrial uses as listed in the WEED CONTROL IN NONCROPLAND, INDUSTRIAL USES chart.

TURFGRASS

DYNO GLYPHOSATE 360® may be applied to control existing vegetation prior to turf grass establishment or renovation. **DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.**

Where existing vegetation is growing under field or unmowed conditions, apply DYNO GLYPHOSATE 360® to actively growing weeds at the growth stages given in the charts on ANNUAL and PERENNIAL WEED CONTROL. Where the vegetation is growing under mowed turf grass management, apply DYNO GLYPHOSATE 360® after omitting at least one regular mowing to allow sufficient growth for good spray interception and translocation into underground plant parts.

Tillage or renovation techniques, such as vertical mowing, coring or slicing, should be delayed for 7 days after application to allow proper translocation into the underground plant parts. Delay establishment of the turfgrass to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient weed regrowth must be attained prior to application.

AVOID ALL CONTACT WITH DESIRABLE VEGETATION IN THE VICINITY OF THE RENOVATION OR ESTABLISHMENT AREA.

TREE INJECTION APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Trees may be controlled if DYNO GLYPHOSATE 360[®] is injected directly into the trunk using suitable equipment that penetrates into the living tissue.

DYNO GLYPHOSATE 360[®] is to be used at a rate of 1 mL (undiluted product) per 10 cm of trunk diameter at chest height. The injections should be spaced evenly around the tree and below any major branches. Application may be done during periods of active growth and full leaf expansion.

Control of trees greater than 20 cm may not be acceptable. Total control may not be evident for 1-2 years following treatment. This treatment will only provide suppression of big-leaf maple; late fall application will provide optimum suppression of big-leaf maple.

CUT STUMP APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled. Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Application must be made using low-pressure equipment (i.e. squirt bottle). Apply DYNO GLYPHOSATE 360[®] immediately to the surface of the freshly cut stump (i.e. within 5 minutes) at a rate of 0.5 mL DYNO GLYPHOSATE 360[®] for every 5 cm of trunk diameter at chest height. Treat only the cambial tissues (outer edge) of the cut surface. Do not treat the central area of the stump, or exposed roots or bark. This treatment may be made at any time of year, except during heavy sap flow or when freezing temperatures prevent application of DYNO GLYPHOSATE 360[®]. A water-soluble dye added to the solution may be used as a treatment indicator. Total control may not be apparent until 1-2 years after treatment.

WOODY BRUSH AND TREES (FOLIAR APPLICATIONS)

Spray coverage should be uniform and complete. Do not spray to the point of run off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on the target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

For woody brush and trees, apply 3 to 6 litres of DYNO GLYPHOSATE 360[®] per hectare. Use ground boom or boomless equipment, or apply as a 1 to 2% solution using hand held high volume equipment. Use the 6 L/ha rate for maple, alder and willow* species, as well as hard to control perennial weed species. (* Suppression only).

INDUSTRIAL SITES, RIGHTS-OF-WAY, RECREATIONAL AND PUBLIC AREAS

DYNO GLYPHOSATE 360[®] may be applied to control brush, trees, and annual and perennial weeds listed on this label **in industrial and rights-of-way areas, such as:** railways, forest roadsides, pipelines, highways, pumping stations, petroleum tank farms, telephone and power rights-of-ways, etc., **and in recreational and public areas, such as:** parks, golf courses, schoolyards, airports and other public areas.

NOTE: For all industrial sites, rights-of-ways, recreational and public areas, repeat treatment may be necessary to control regeneration or new growth.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

GROUND APPLICATION FOR ALL NON-CROPLAND USES:

For woody brush and trees, apply DYNO GLYPHOSATE 360[®] at 3 to 6 L/ha using ground boom, or boomless, or mist blower equipment. Or, apply as a 1 to 2% solution using hand-held high-volume equipment. Use the higher rate for maple, alder and willow* species, and for hard to control perennial weeds (*suppression only). Apply as directed to foliage of actively growing vegetation. Spray coverage should be uniform and complete. Do not spray to the point of runoff, or allow spray drift to contact desirable vegetation as severe injury or destruction may occur.

Mowed or tilled weeds should be allowed to reach optimum growth stage at time of application.

DO NOT APPLY UNDER WIND OR OTHER CONDITIONS THAT ALLOW DRIFT.

AERIAL APPLICATION: FOR INDUSTRIAL RIGHT-OF-WAY ONLY:

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Use Precautions

Directions for Use:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical-resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing

ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a spray volume of 30-100 L/ha

Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of DYNO GLYPHOSATE 360[®] accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion. For woody brush and trees, apply 3-6 L/ha. Use 6 L/ha for maple, alder and willow* species, and for hard to control perennial weed species. Use the recommended rates of the herbicide in 30 to 100 litres of water per hectare. As density of vegetation increases, spray volume should be increased within the allowed range to ensure complete coverage. (*suppression only)

PURPLE LOOSESTRIFE CONTROL

- DO NOT TREAT PLANTS OVER OPEN WATER. DYNO GLYPHOSATE 360[®] herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using handheld equipment, spray-to-wet.
- For wiper applications, see WIPER, WICK AND ROLLER EQUIPMENT section.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

Table 11: Weed control in non-cropland areas, and industrial uses

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Annual grasses and broad leaf weeds	2.25-3.5	50 - 100	1	Treat actively growing weeds.
Perennial Weeds	2.5	50 - 300	1	Treat actively growing weeds. Add 0.5% v/v of a recommended surfactant when using more than 150 L of water (see MINIMUM AND ZERO TILLAGE TANK MIXES) Use higher rate for heavy infestations and for long term control.
Quackgrass	4.75-7.0	50 - 300	2	
Canada thistle (bud stage)	4.75-7.0	100 - 300	2	
Purple loosestrife	6.0	300 – 600	1-2 (or 33% for wiper application)	See PURPLE LOOSESTRIFE CONTROL section for instructions on application. Summer through fall is optimum.
Other perennials	7.0-12	100 – 300	2	
Brush and Trees Birch, Cherry, Poplar, Western Snowberry, Willow	3.0-6.0	100-300	1-2	Summer through early fall.
Maple, Raspberry/ Salmonberry, Alder	6.0	100 – 300	2	Late summer through fall. Fall is optimum.
Turfgrass renovation: Annual & Perennial Weeds	2.5 – 12.0	100 – 300	1-2	Use higher end of rate range for perennials.

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Roadside vegetation (1-2 metres wide along shoulder)	1) 0.75 – 1.0 + 1.25 – 2.5L DyCleer 480® Agricultural Herbicide OR 2) 0.75 – 1.0 + 0.30L DyCleer 480® Agricultural Herbicide + 1.2L 2,4-D amine 500	25 – 150	-	Refer to tank mix section on product labels for specific weeds controlled. Refer to chart on ANNUAL WEED CONTROL for rates for specific weeds. For different 2,4-D formulations, adjust the rate accordingly. Do not apply to standing water.
Residual Control Annual & Perennial weeds.	2.5 – 12 + 4.0 – 9.0 L Simadex® Flowable	200 – 400	-	This tank mix will provide season-long control of most germinating broadleaf weeds and grasses, and may also provide post-emergent control of certain annual weeds. Do not apply to coarse, sandy soil or gravelly soil. One application per year. Use the most restrictive label directions for each product in the mix.

Table 12: Weed control in tree, vine and berry crops

CROP	RATE (L/Ha)	PRE-HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Apples, apricot, cherry (sweet/sour), peaches, pears, plums	2.25-12 (directed spray)	30	3	Annual and perennial weeds	Apply as directed spray with no more than 275 kPa pressure.
Apples, grapes	Tank Mix 2.25-12 + simazine 2.0-4.5 kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long pre-emergent control. Do not apply to coarse, sandy or gravelly soil. Use the more restrictive label directions for each product in the mix. DO NOT apply to orchards established less than 1 year or vineyards established less than 3 years. Simazine 80W [®] rate is equivalent to 2.25-5.0 kg/ha Princep Nine-T [®] , or 4.0-9.0 L/ha Simadex [®] .
Grapes	2.25-12 (directed spray)	14	3	Annual and perennial weeds	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. Do not apply to vines that have been established less than 3 years.
Highbush (cultivated) blueberry	2.8-5.6 (directed spray)	30	1	Quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	1-2% solution (spot treatment)	Apply in non-bearing year only	1	Wood brush	Apply as directed spray in mid-summer of the vegetative (non-bearing) year. See AGRICULTURAL AND CROPLAND USES section for instructions on spot treatments.

CROP	RATE (L/Ha)	PRE- HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Filberts, hazelnut (established plantations)	2.25-3.5 (directed spray)	14	-	Annual weeds	Use as directed spray, with no more than 275 kPa pressure.
Walnut, chestnut, Japanese chestnut	2.25-12 (directed spray)	-	2	Annual and perennial weeds	Apply late spring and fall, post-harvest but prior to a killing frost. Apply in 200-300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 2% wiper solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Cranberry	20% Solution (1L DYNO GLYPHOSA TE 360® + 4 L water)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.
Strawberry	1-2% Solution (spot treatment) 33% solution (wiper applicator)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage. See AGRICULTURE AND CROPLAND USES section for instructions on spot treatments. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.

Table 13: Annual weed control

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or boomless	Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer canola, wild mustard, lady's thumb, stinkweed	Weeds up to 8 cm in height	0.75	50-100	For wild oats apply at 1 to 3 leaf stage. Add 350 mL of a surfactant registered for use such as Agral 90®, Ag-Surf®, and Companion™. For heavy wild oat infestations use 1.0 L/ha rate.
	All annual grasses listed above plus foxtail barley* (suppression only) All annual broadleaf weeds listed above plus flixweed** and kochia**.	Weeds 8 cm to 15 cm	1.0	50-100	Add 350 mL of Surfactant registered for use as listed above. *Apply before initiation of seed head or senescence of the lower leaves. **Suppression only. Refer to higher rates of this table.
	All annual grasses listed above plus downey brome, giant foxtail and Persian darnel. All annual broadleaf weeds listed above plus lamb's quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, narrow-leaf hawk's beard***	Weeds up to 15 cm in height	1.25-1.9	50-100	No additional surfactant required. *DO NOT use these rates on plants greater than 8 cm in height. **For 3 to 4 leaf stage use 1.9 L/ha rate. ***For weeds 8 cm to 15 cm in height use 1.9 L/ha.
	All annual grasses listed above plus crab grass and annual blue grass. All annual broadleaf weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch.	Weeds up to 15 cm in height	2.25	50-100	
	All annual grasses and broadleaf weeds listed above.	Weeds over 15 cm in height	3.5	50-100	

EQUIPMENT	WEEDS CONTROLLED	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Wipers and wicks	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	This mixture is a 33% solution. Contact point for wiper or wick must be at least 5 cm above desirable vegetation. In severe weed infestations, reduce ground speed to ensure adequate control. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	0.5- 1.0	10	This mixture is a 5- 10% solution. Roller speed 50-150 rpm. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications.

Table 14: Perennial weed control

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or Boomless	Alfalfa	Early bud to full bloom stage. Fall Applications only.	3.7-5.0	50-300	Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see ALFALFA CONTROL WITH 2,4-D TANK MIX section under SPECIAL NOTES FOR PERENNIAL WEED CONTROL section.
Boom or Boomless	Canada thistle	Bud stage or beyond	4.75 - 7.0	100-300	Allow 5 days after application before tillage. Heavy frost prior to application may decrease control.
		Rosette stage (summer fallow)	2.5	50-100	Apply in clean water using flat fan nozzles. Ensure proper growth stage by performing last summer fallow tillage between July 5 and August 1st. Allow regrowth for a minimum of 5 weeks to reach rosette stage and a minimum of 15 cm in diameter. Allow 10 days after application before tillage. Treatment after a mild frost is possible if leaves are still green and actively growing but not after heavy damaging frost.
Boom or Boomless	Dandelion	Up to 15 cm. in height	2.5	50-100	Allow 3 or more days after treatment before tillage for all rates. Use the higher rates when infestations are heavy.
		Over 15 cm. in height	3.7	50-300	Refer to DANDELION notes in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. Allow 7 or more days after treatment before tillage. For more information, see PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, AND DANDELION;
		Rosette to full bloom (preharvest)	2.5	50-100	SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Foxtail barley	Seeding to heading	2.5-5	50-100	Allow a minimum of 1 day after treatment before tillage or seeding. Use higher rates for larger more established plants, heavy infestations, or if plants are stressed.
Boom or Boomless	Common Milkweed	Bud to full bloom	2.5	50-100	Reduced results may occur if sprayed after full bloom. Milkweed may not all be in the correct stage, therefore, repeat treatments

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
		(preharvest) Bud to full bloom	12	100-300	may be required. Repeat treatment may be required. Allow 7 days or more after application before tillage. See PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Toadflax	Vegetative stage (summer fallow) Bud to full bloom (pre-harvest)	2.5	50-100	Apply in clean water using flat fan nozzles. Allow 7 or more days after treatment before tillage in summer fallow. For more information, see Summer fallow Control under TOADFLAX in SPECIAL NOTES FOR PERENNIAL WEED CONTROL section, or PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Quack grass control, light to moderate infestations	3 to 4 green leaves or more	2.5	50-300	Apply in clean water using flat fan nozzles. Allow 3 or more days after treatment before tillage. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. For higher water volumes (ie.,150- 300L/ha) an approved surfactant must be added at 0.5 L per 100L of clean water. (0.5% v/v). Refer to list of surfactants in QUACKGRASS part of SPECIAL NOTED FOR PERENNIAL WEED CONTROL section. See also below.
	Quack grass (long term control, heavy infestations, high water volumes)	3-4 green leaves or more	2.5 - 7.0	50 - 300	Allow 3 or more days after treatment before tillage. Rates higher than 2.5L/ha will provide more consistent, longer term control especially with heavy infestations and/or higher (150-300 L) water volumes. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information.

EQUIPMENT	WEEDS CONTROL	GROWTH STAGE	RATE L/Ha	WATER L/Ha	COMMENTS
	Other perennial weeds	Early heading or early bud stage (See VEGETATION CONTROLLED section)	7-12	100-300	Use higher rate for weeds beyond 8 cm in height or in heavy weed infestation. Allow 7 days after application before tillage. DYNOLYPHOSATE 360® rate is equivalent to 70 to 120 mL/100 m ² .
	Woody brush and trees	Actively growing from June through August	3-6	100-300	Use higher rate for maple, alder, Rubus species and willow*. Spray to wet.
High volume or knapsack	Woody brush and trees	Actively growing from June through August	1-2.0	100	This mixture is a 1 to 2% solution. Use higher rate for maple, alder, Rubus species and willow*. Spray to wet. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on high volume or knapsack applications.
Wipers and wicks	Perennial weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual and perennial weeds	Weeds to be at least 15 cm above desirable vegetation	0.5-1.0	10	This mixture is a 5-10% solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications. This treatment will only suppress perennial weeds contacted. Roller speed 50-150 rpm.
Tree Injection	Trees*	During periods of active growth and full leaf expansion except during periods of heavy sap flow.	0.5 mL/5 cm of trunk diameter at chest height	None	Suitable equipment must be used to penetrate to living tissue. Space applications evenly around the circumference of the trunk below major branches. Control of trees with trunk diameters greater than 20 cm may not be acceptable. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on TREE INJECTION APPLICATIONS. *Suppression only for willow.

SPECIAL NOTES FOR PERENNIAL WEED CONTROL

QUACKGRASS

For **season-long control on fall tilled ground**: Apply 2.5 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SURFACTANTS

The following is a list of approved surfactants for use with DYNO GLYPHOSATE 360[®] Herbicide for control of quackgrass:

Agral 90[®]
Companion[™]
Ag-Surf[®]

Always refer to surfactant label for specific instructions regarding use of that product.

CANADA THISTLE

Control of Canada thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

DYNO GLYPHOSATE 360[®] HERBICIDE PLUS BANVEL[®] OR ORACLE[®] TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summer fallow or in postharvest stubble, apply 1.7 litres per hectare DYNO GLYPHOSATE 360[®] Herbicide plus 1.25 litres per hectare Banvel[®] or Oracle[®] in 100-200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90[®], Ag-Surf[®]

or Companion™. For best results in summer fallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

TOADFLAX

Control of Toadflax in a Summer Fallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 10th and July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are a minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 2.5 to 5.0 litres per hectare DYNO GLYPHOSATE 360® Herbicide and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 2.5 to 5.0 litres per hectare DYNO GLYPHOSATE 360® Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14-day interval between application and planting is required.

Use the higher DYNO GLYPHOSATE 360® Herbicide rates when perennial grasses are prevalent.

ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to **PERENNIAL WEED CONTROL WITH DYNO GLYPHOSATE 360 HERBICIDE®** table.

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow up tillage after application should be delayed 5 to 7 days for best results. See **ANNUAL AND PERENNIAL WEED CONTROL** tables for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required to control weeds regenerating from seeds or other underground parts.

Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

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Companion™ and Lontrel® are the registered trademarks of Dow AgroSciences LLC

Aatrex Nine-O®, Agral®, DyCler®, Princep Nine-T® are the registered trademarks of a Syngenta Group Company

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FBN Quinclorac

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass and suppression of annual and perennial sow-thistle in spring and durum wheat, spring barley, canary seed, canola, **Clearfield** canola quality *Brassica juncea*, and tame mustard (brown and oriental).

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

COMMERCIAL (AGRICULTURAL)

DRY FLOWABLE

ACTIVE INGREDIENT: Quinclorac 75% DF

REGISTRATION NO.: 33322 *PEST CONTROL PRODUCTS ACT*

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT,
CALL COLLECT DAY OR NIGHT 1-613-996-6666**

CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc. PO
Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg – 10 kg

GENERAL INFORMATION

FBN Quinclorac is a dry flowable herbicide for selective post-emergence control of green foxtail (including Group 1 and Group 3 resistant biotypes), volunteer flax, cleavers, and barnyard grass in hard red spring, Canadian prairie spring, durum, Canada Western extra strong wheats, spring barley and canary seed, canola (*Brassica napus* – all varieties, including conventional, **Clearfield**®, LibertyLink® and Roundup Ready®), **Clearfield** canola quality *Brassica juncea* (e.g. canola quality *Brassica juncea* varieties with the **Clearfield** trait) and brown and oriental tame mustard.

FBN Quinclorac is a herbicide with mainly systemic action. Uptake into the plant occurs through both the foliage and root system. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in inconsistent control of weeds growing underneath.

Visual symptoms of weed control of **FBN Quinclorac** may take up to two weeks following application to develop. These symptoms include initial twisting to stunting, reddening and chlorosis about 14 days followed by necrosis and death about 21 days after application. Even though **FBN Quinclorac** symptoms may take some time to develop, competition from the weeds treated with **FBN Quinclorac** is eliminated soon after application.

DIRECTIONS FOR USE

Application Rate and Timing for Wheat, Spring Barley and Canary Seed

DO NOT APPLY BY AIR.

Apply **FBN Quinclorac** at 135-165 g/ha when weeds are small and actively growing. **FBN Quinclorac** will control the weeds at the timing detailed in **Table 1**. **FBN Quinclorac** can be applied to wheat, spring barley and canary seed at the maximum application rates and timing detailed in **Table 1**.

Use the 135 g/ha rate ONLY for control of volunteer flax, barnyard grass, cleavers, lighter infestations of green foxtail and suppression of annual and perennial sow-thistle. Use the higher rate of 165 g/ha for control of heavier infestations of green foxtail. (Do not use the 165 g/ha rate on barley.) **Use only the 135 g/ha rate when applying FBN Quinclorac to spring barley.**

Improved cleavers control in canola may be accomplished using a rate of 62 g/ha when tank mixed with Liberty 150 SN Herbicide at a rate of 3.33 L/ha on Liberty Link Canola, or with glyphosate products (360 g/L acid equivalent (ae) isopropylamine salt formulations or 540 g ae/L potassium salt formulations) at a rate of 667 g ae/ha on Roundup Ready Canola. All glyphosate products must be registered for post-emergent use on glyphosate tolerant canola varieties. Application should be made from the 2 to 6 leaf stage of the canola crop when cleavers are between the cotyledon to 3 whorls stage.

DO NOT apply **FBN Quinclorac** to any field more often than every second year. This practice must be respected in order to avoid potential injury to future rotational crops, to minimize the potential for carryover and accumulation of soil residues, and to reduce the selection pressure which could contribute to the development of resistant biotypes.

Early treatment of weeds with **FBN Quinclorac** is important to maximize crop yield potential through elimination of early weed competition. Some initial crop injury may be observed after application, but this is usually outgrown and should not affect crop yield.

Crop	Use Rate (g/ha)	Preharvest Interval (days)
Canola ¹ , Clearfield canola quality <i>Brassica juncea</i> , and tame mustard (brown and oriental)	135	60
Wheat (spring and Durum) and canary seed	135-165	77
Spring barley	135	80

¹*Brassica napus* – all varieties, including conventional, **Clearfield**, LibertyLink and Roundup Ready.

TABLE 1: WEED AND CROP APPLICATION TIMING TABLE

WEED	TRUE LEAF RANGE
Green foxtail	1 - 5 leaf (max 2 tillers)
Volunteer flax	1 - 8 cm.
Cleavers	1 - 3 whorls
Barnyard grass	1 - 5 leaf
Annual sow-thistle*	2 – 6 leaf
Perennial sow-thistle*	2 – 6 leaf
CROP	
Spring barley**	1 – 4 leaf (prior to tillering)
Wheat (spring and durum)	1 - 5 leaf
Canola ¹	2 - 6 leaf
Canary seed***	3 – 5 leaf
Clearfield canola quality <i>Brassica juncea</i>	2 - 6 leaf
Brown and oriental tame mustard	2 - 6 leaf

*Suppression only.

Maximum rate for barley is 135 g/ha. To avoid crop injury, apply **FBN Quinclorac before spring barley tillers.

***Not to be used for human consumption or fed to livestock.

¹*Brassica napus* – all varieties, including conventional, Clearfield, LibertyLink and Roundup Ready.

SPRAYING INSTRUCTIONS

Ground Application

Use sprayers equipped with standard flat fan pesticide nozzles with a spray volume of 100 L/ha at a constant pressure of 275-425 kPa. Tilt spray nozzles 45 degrees forward to ensure better coverage. The use of 50 mesh strainers and screens is recommended.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) fine classification. Boom height must be 60 cm or less above the crop or ground.

ADDITIVES

Always use **MERGE** adjuvant at 1.0% v/v for optimum performance of **FBN Quinclorac**.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

TANK MIX COMBINATIONS (BARLEY, WHEAT AND CANARY SEED APPLICATIONS ONLY):

For the appropriate rate of **FBN Quinclorac**, refer to the Application Rate and Timing section of the label.

Broadleaf Weed Control

Although **FBN Quinclorac** provides control of several broadleaf weeds, a tank mix with a broadleaf compound is required to give broad spectrum broadleaf weed control in wheat.

For additional control of broadleaf weeds in barley and wheat, **FBN Quinclorac** can be tank mixed with any of the broadleaf herbicides listed in **Table 2**. When tank mixing **FBN Quinclorac** with these broadleaf herbicides, a slight reduction in control of green foxtail may be observed. The level of green foxtail control may be improved by using the 165 g/ha rate of **FBN Quinclorac** in the tank mixture for wheat only.

Refer to **Table 2** for appropriate use rates and timing of crop applications. Always refer to the labels of all tank mix partners and observe the most restrictive application directions, restrictions, precautions and personal protective equipment of all tank mix partners.

TABLE 2: TANK MIX OPTIONS FOR FBN QUINCLORAC ON BARLEY, WHEAT, AND CANARY SEED

Crop	FBN Quinclorac Rate (g/ha)	Tank Mix Partner	Rate	Crop Stage	Weeds Controlled
Barley	135	MCPA Amine (assume 500 series)	1.1 L/ha	3-4 leaf	FBN Quinclorac – see Table 1. Broadleaf weeds listed on MCPA Amine label.
		MCPA Ester (assume 500 series)	1.1 L/ha	3-4 leaf	FBN Quinclorac – see Table 1. Broadleaf weeds listed on MCPA Ester label.
		Buctril M	1.0 L/ha	2-4 leaf	FBN Quinclorac – see Table 1. Broadleaf weeds listed on Buctril M label.
		Refine Extra¹	20 g/ha	2-4 leaf	FBN Quinclorac – see Table 1. Broadleaf weeds listed on Refine Extra label.
Wheat (spring and durum)	135-165	Buctril M	1.0 L/ha	2-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on Buctril M label.
		2,4-D Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on

		2,4-D Ester (assume 500 series)	0.840-1.1 L/ha	4-5 leaf	2,4-D Amine label. FBN Quinclorac - see Table 1. Broadleaf weeds listed on 2,4-D Ester label.
		MCPA Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on MCPA Amine label.
		MCPA Ester (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on MCPA Ester label.
		Refine Extra¹	20 g/ha	2-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on Refine Extra label.
		Express Pack¹ (Express + 2,4-D)	10 g/ha + 0.625 L/ha	3-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on Express Pack label.
Canary seed ²	135	Buctril M	1.0 L/ha	3-5 leaf	FBN Quinclorac - see Table 1. Broadleaf weeds listed on Buctril M label.

¹ Addition of surfactants other than Merge adjuvant is not required.

² Avoid over application.

Do not delay spraying broadleaf weeds if grassy weeds are not in the correct stage for treatment. If green foxtail, wild oats and broadleaf weeds are not in the correct stages for treatment, apply separate applications of each herbicide timed to control the required spectrum of weeds. Use **MERGE** adjuvant only with all tank mixtures.

RECROPPING

Due to the residual activity of **FBN Quinclorac** in the soil, land treated with **FBN Quinclorac** cannot be rotated to crops other than specified in **Table 3**. To avoid injury to rotational crops, the minimum recropping intervals in **Table 3** must be followed.

TABLE 3: MINIMUM RECROPPING INTERVALS

CROP	MINIMUM RECROPPING INTERVAL (Months)	NOTES
Wheat* (spring, durum) Spring barley* Canola *	0 0 0	These crops can be re-planted in the same season as FBN Quinclorac applications.
Field peas Sunflowers	10 10	These crops and the crops listed above can be planted the year following application of FBN Quinclorac .
Oats	12	These crops and the crops listed above can be planted the year following application of FBN Quinclorac .

Flax	10	These crops and the crops listed above can be planted the year following application of FBN Quinclorac .
Lentils	10	

*In the event of crop failure, only canola, spring or durum wheat or spring barley may be reseeded in fields treated with **FBN Quinclorac**.

FBN Quinclorac should not be used on land where potatoes or vegetables are part of the rotation.

The company recommends that a field bioassay (a test strip grown to maturity) be conducted the year before growing any crops other than those listed in **Table 3**.

On lighter soils with low organic matter or under dry conditions, some crop injury may occur particularly in flax and lentils but will not reduce yield. Under these conditions, the minimum recropping interval for flax and lentils should be extended by 12 months.

Refer to the broadleaf herbicide label for specific additional recropping restrictions.

RESTRICTIONS AND LIMITATIONS

1. Do not apply **FBN Quinclorac** when weather conditions may cause spray drift from treated areas to adjacent crops. Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes and vegetables will be injured by spray drift of **FBN Quinclorac**.
2. Do not apply FBN Quinclorac to wheat, spring barley and canary seed under seeded to forages.
3. Do not apply **FBN Quinclorac** to wheat, spring barley, canary seed, canola, **Clearfield** canola quality *Brassica juncea* or tame mustard that has been subjected to stress from conditions such as frost, hail damage, flooding, drought, extended cold period, etc.
4. Rainfall within 6 hours after application may reduce effectiveness of spray.
5. When **FBN Quinclorac** is applied beyond the recommended growth stages, limited crop injury and/or unsatisfactory weed control may result.
6. Cool weather conditions or drought will delay **herbicide** activity and if prolonged, may result in poor weed control.
7. Do not use **FBN Quinclorac** with additives, pesticides or fertilizers not specifically recommended on this label.
8. Allow 4 days between application of **FBN Quinclorac** and any other chemical not recommended as a tank mix combination on this label.
9. **FBN Quinclorac** must not be applied within 77 days of harvest of canary seed and wheat, within 60 days of harvest of canola and within 80 days of harvest of spring barley.
10. Spring barley treated with **FBN Quinclorac** is NOT TO BE USED FOR HUMAN CONSUMPTION.
11. Canary seed treated with **FBN Quinclorac** is NOT TO BE USED FOR HUMAN CONSUMPTION OR FED TO LIVESTOCK.

12. Apply using ground equipment only. DO NOT APPLY BY AIR.
13. Overspray or drift into important wildlife habitats such as shelterbelts, wetlands, woodlots, vegetated ditch, ponds and lake banks and other cover on the edges of fields should be avoided. A 10-metre buffer zone should be observed adjacent to aquatic habitats such as streams, ponds, rivers and lakes and to areas that drain into these habitats. When a tank mixture is used, consult the label of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.
14. Do not graze the treated crops or cut for hay within 77 days of application.
15. Grain and meal from treated canola can be fed to livestock. DO NOT graze or feed other portions of the treated canola to livestock.
16. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats.

Buffer Zones for the Protection of Terrestrial Habitats from Spray Drift of Quinclorac

Method of application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitats
Field Sprayer	Durum and spring wheat, canary seed	4
	Spring barley Canola - Brassica napus (conventional, Clearfield, LibertyLink and Roundup Ready varieties), Canola - Brassica juncea (conventional, Clearfield, LibertyLink and Roundup Ready varieties) and Tame mustard (brown and oriental)	3

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING

1. Thoroughly clean the sprayer prior to use. For appropriate cleaning instructions, refer to the label of the product sprayed previous to application of **FBN Quinclorac**.
2. Fill the clean spray tank half full with clean water. Start agitation or by-pass system. Agitation should be running during the entire mixing procedure.
3. Add the correct amount of **FBN Quinclorac** and agitate 2 to 3 minutes.

4. Add the correct amount of broadleaf herbicide if required. When mixing **FBN Quinclorac** with **EXPRESS PACK**, **EXPRESS** herbicide must be completely in suspension in the spray tank prior to adding **2,4-D** herbicide.

NOTE: On repeat tank loads of either **EXPRESS PACK** or **REFINE EXTRA** herbicide, prepare an **EXPRESS**/water or **REFINE**/water slurry in a separate container with clean water before adding to the spray tank.

5. Add the correct amount of **MERGE** adjuvant and agitate 2 to 3 minutes.
6. Add remainder of water to the spray tank and maintain sufficient agitation during mixing and spraying to ensure a uniform spray mixture.
7. For sprayer clean-up, refer to the sprayer clean-up section.
8. Consult the broadleaf herbicide label for additional application instructions, use precautions and recropping information. **SPRAYER CLEAN-UP**

Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes, tomatoes and vegetables are particularly sensitive to **FBN Quinclorac**. To avoid injury to subsequent crops other than wheat, the sprayer should be thoroughly cleaned immediately after use and prior to spraying other crops by performing the following steps:

1. Following spray application, drain any remaining spray solution, then flush the tank, boom and hoses with clean water until any visible residues are removed. (Repeat step 1, if necessary.) **DO NOT CLEAN SPRAYER NEAR DESIRABLE VEGETATION OR NEAR WELL OR WATER SOURCE.**
2. Completely fill spray tank with clean water while adding 1 litre of household ammonia (containing 3% ammonia) per 100 litres of water or a commercially licensed tank cleaner such as **FINNISH®**. Reduce the amount of ammonia added proportionally if higher concentrations (%) of ammonia are used. Flush the solution through the boom and nozzles and then add more water to completely refill the tank. Agitate the solution for at least 15 minutes and then flush the boom and nozzles until the spray tank is empty.
3. Remove the nozzles and screens and clean separately in a bucket containing a cleaning agent and water.
4. Repeat step 2.
5. Thoroughly rinse the tank with clean water and flush the water through the boom.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **FBN Quinclorac** is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to **FBN Quinclorac** and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **FBN Quinclorac** or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partners.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. May irritate the skin. Avoid contact with the skin.
3. Potential skin sensitizer.
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
8. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
9. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
10. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration

wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store in original, tightly-closed container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.

4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
5. Freezing will not harm **FBN Quinclorac**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

1. Follow provincial instruction for any required cleaning of the container prior to its disposal.
2. Make the empty container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

MERGE® is a registered trademark of BASF Canada Inc.

®All other products listed are registered trademarks of their respective companies.

FBN Quinclorac

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass and suppression of annual and perennial sow-thistle in spring and durum wheat, spring barley and canary seed, canola, **Clearfield** canola quality *Brassica juncea*, and tame mustard (brown and oriental).

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

COMMERCIAL (AGRICULTURAL)

DRY FLOWABLE

ACTIVE INGREDIENT: Quinclorac..... 75% DF

REGISTRATION NO.: 33322 *PEST CONTROL PRODUCTS ACT*

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL COLLECT DAY OR NIGHT
1-613-996-6666**

CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NET CONTENTS: 1.0 kg

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. May irritate the skin. Avoid contact with the skin.
3. Potential skin sensitizer.
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
6. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
7. Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
8. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
9. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
10. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
11. **As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.**

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store in original, tightly-closed container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
5. Freezing will not harm **FBN Quinclorac**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

1. Follow provincial instruction for any required cleaning of the container prior to its disposal.
2. Make the empty container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

GROUP	1	HERBICIDE
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FBN CLODINAPOP
Emulsifiable Concentrate

AGRICULTURAL

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES, OKANAGAN AND CRESTON FLATS
REGIONS AND INTERIOR OF BRITISH COLUMBIA (INCLUDING THE PEACE RIVER
REGION) ONLY.**

A post emergence herbicide for control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian dandelion and volunteer canary seed in Spring wheat and Durum wheat.

ACTIVE INGREDIENT:

Clodinafop-propargyl.240 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING.
KEEP OUT OF REACH OF CHILDREN.

CAUTION



POISON

WARNING: EYE & SKIN IRRITANT

Warning, contains the allergen epoxidized soybean oil

REGISTRATION NO.: 33323 PEST CONTROL PRODUCTS ACT

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

NET CONTENTS: **1.84L, 3.68L, 4.7L, 14L, 15L, 55L, 200L, 450L, 1100L, Bulk**

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

This product contains a PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING. Vomiting may cause aspiration pneumonia. Treat symptomatically for ingestion and/or skin and eye contact.

PRECAUTIONS

- CAUTION – POISON
- WARNING – EYE AND SKIN IRRITANT
- KEEP OUT OF THE REACH OF CHILDREN.
- Harmful if swallowed.
- May irritate eyes. Do not wear contact lenses when using.
- DO NOT get in eyes or on skin. Avoid contact with clothing. Wear coveralls or long-sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.
- Remove contaminated clothing immediately after use. Store and wash contaminated

- clothing separately from household laundry before reuse. Wash thoroughly with soap and water after handling. Handle and apply only as recommended on this label.
- Do not eat, drink or smoke while mixing, loading or during application.
 - Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours after application.

ENVIRONMENTAL PRECAUTIONS

This product contains aromatic petroleum distillates which are toxic to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic material such as clay).

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorized persons and animals. Store separate from food, feed, and fertilizer.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

For information on disposal of unused, unwanted product, contact the provincial regulatory authorities, manufacturer or Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills or call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

CONTAINER DISPOSAL:

For recyclable containers:

Do not reuse this container for any purpose. This is a recyclable container, and may be disposed of at a container collection site. For details on collection and disposal of containers contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of

purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

**IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL OR POISONING, CALL
613-996-6666 (collect) OR *666 (cell).**

FBN CLODINAFOP
Emulsifiable Concentrate

AGRICULTURAL

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES, OKANAGAN AND CRESTON FLATS
REGIONS AND INTERIOR OF BRITISH COLUMBIA (INCLUDING THE PEACE RIVER
REGION) ONLY.**

A post emergence herbicide for control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian darnel and volunteer canary seed in Spring wheat and Durum wheat.

ACTIVE INGREDIENT:

Clodinafop-propargyl.240 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING.
KEEP OUT OF REACH OF CHILDREN.

CAUTION



POISON

WARNING: EYE & SKIN IRRITANT

Warning, contains the allergen epoxidized soybean oil

REGISTRATION NO.: 33323 PEST CONTROL PRODUCTS ACT

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

This product contains a PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING. Vomiting may cause aspiration pneumonia. Treat symptomatically for ingestion and/or skin and eye contact.

PRECAUTIONS

- CAUTION – POISON
- WARNING – EYE AND SKIN IRRITANT
- KEEP OUT OF THE REACH OF CHILDREN.
- Harmful if swallowed.
- May irritate eyes. Do not wear contact lenses when using.
- DO NOT get in eyes or on skin. Avoid contact with clothing. Wear coveralls or long-sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.
- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse. Wash thoroughly with soap and water after handling. Handle and apply only as recommended on this label.

- Do not eat, drink or smoke while mixing, loading or during application.
- Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours after application.

ENVIRONMENTAL PRECAUTIONS

This product contains aromatic petroleum distillates which are toxic to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic material such as clay).

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorized persons and animals. Store separate from food, feed, and fertilizer.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

For information on disposal of unused, unwanted product, contact the provincial regulatory authorities, manufacturer or Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills or call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

CONTAINER DISPOSAL:

For recyclable containers:

Do not reuse this container for any purpose. This is a recyclable container, and may be disposed of at a container collection site. For details on collection and disposal of containers contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276). Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL OR POISONING, CALL 613-996-6666 (collect) OR *666 (cell).

PRODUCT INFORMATION

FBN CLODINAFOP is a systemic, post-emergence herbicide for the selective control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian darnel and volunteer canary seed in all types of Spring wheat and Durum wheat. Do not use FBN CLODINAFOP on barley, as crop injury will occur. Do not apply this product using aerial application equipment except under conditions specified on this label.

FBN CLODINAFOP is absorbed by the leaves and is rapidly translocated to the growing points of leaves and stems. Thorough coverage of the plants is essential for consistent control. Actively growing susceptible grasses stop growing within 48 hours of treatment. Depending on species, growing conditions and crop competition, leaves and growing points turn yellow within one to three weeks after application. Further colour changes and loss of vigour will be observed, followed by a browning and complete control three to five weeks after application.

Although FBN CLODINAFOP does not control broadleaf weeds, FBN CLODINAFOP can be tank-mixed with a wide range of broadleaf herbicides to provide broad spectrum weed control in wheat. See section entitled "TANK MIXES of FBN CLODINAFOP WITH BROADLEAF WEED HERBICIDES" and refer to the appropriate Tank Mix section for ground and aerial application.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic matter such as clay.)

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.

CROPS: Spring Wheat and Durum Wheat

FBN CLODINAFOP can be used on all varieties of spring wheat and Durum wheat. Observe minimum interval to harvest of 60 days after treatment.

Do not apply on barley or any crop other than Spring Wheat or Durum wheat, as crop damage

will result. Do not allow spray to drift to adjacent fields seeded to crops other than spring wheat or Durum wheat.

Do not treat wheat underseeded to forages. Observe a minimum of three (3) days before grazing livestock on crops treated with FBN CLODINAFOP.

For use directions specific to application by air, please refer to sections on aerial application. For aerial application precautions, please refer to the precautions section.

WEEDS CONTROLLED: Wild Oats, Volunteer (Tame) Oats, Green Foxtail, Yellow Foxtail, Barnyard grass, Persian Darnel and Volunteer Canary Seed

TIMING OF APPLICATION:

TIMING	GROWTH STAGE	ADDITIONAL REMARKS
WILD OATS	1 to 6 leaf stage on main stem	Prior to emergence of 4th tiller.
VOLUNTEER (TAME) OATS	3 to 6 leaf stage on main stem	Prior to emergence of 4th tiller.
GREEN FOXTAIL AND YELLOW FOXTAIL (wild millet, pigeon grass)	1 to 5 leaf stage on main stem	For optimum control apply prior to emergence of the 3rd tiller and while foxtail is actively growing.
BARNYARD GRASS	1 to 5 leaf stage on main stem	For optimum control apply before tillering, and while barnyard grass is actively growing.
PERSIAN DARNEL	1 to 5 leaf stage on main stem	For optimum control apply before tillering, and while Persian darnel is actively growing.
VOLUNTEER CANARY SEED	1 to 6 leaf stage on main stem	Prior to emergence of 4th tiller.
SPRING WHEAT AND DURUM WHEAT	Prior to emergence of 4th tiller	When tank-mixing with a broadleaf herbicide, always refer to the label of the broadleaf partner prior to use.

- For optimum results, apply FBN CLODINAFOP to actively growing weeds. An early application will maximize crop yields by reducing weed competition. Weeds emerging after application of FBN CLODINAFOP will not be controlled.
- Weed control following application of FBN CLODINAFOP alone, or in combination with broadleaf weed herbicides, can be reduced or delayed under stress conditions such as drought, heat, insufficient fertility, flooding or prolonged cool temperatures. Grass escapes or re-tillering may occur if application is made during prolonged stress conditions. Optimum weed control will be obtained if application of FBN CLODINAFOP is delayed until the stress conditions have ended and weeds are once again actively growing.
- FBN CLODINAFOP alone can be used 30 minutes before rainfall.
- Do not apply to crop that is stressed by conditions such as frost, low fertility, drought, flooding, disease or insect damage as crop injury may result.

RATE OF USE FOR GROUND APPLICATION:

Apply the recommended rate of FBN CLODINAFOP and the recommended rate of an adjuvant of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT in a minimum of 50 to 100 L of water per hectare.

To control: WILD OATS VOLUNTEER (TAME) OATS GREEN FOXTAIL YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER CANARY SEED	To control: WILD OATS VOLUNTEER (TAME) OATS GREEN FOXTAIL YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER CANARY SEED PERSIAN DARNEL
Rates for use with 50 L/ha water	
Apply: 230 mL/ha of FBN CLODINAFOP + 400 mL/ha of (SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with 50 L/ha of water (0.8% volume/volume)	Apply: 290 mL/ha of FBN CLODINAFOP + 500 mL/ha of (SCORE or ASSIST, or CROPOIL 83/17 ADJUVANT with 50 L/ha of water (1.0% volume/volume)
Rates for use with 100 L/ha water	
Apply: 230 mL/ha of FBN CLODINAFOP + 800 mL/ha of SCORE, ASSIST or CROPOIL 83/17 ADJUVANT with 100 L/ha of water (0.8% volume/volume)	Apply: 290 mL/ha of FBN CLODINAFOP + 1 L/ha of SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with 100 L/ha of water (1.0% volume/volume)

NOTE: Always use an adjuvant of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with FBN CLODINAFOP.

RATE OF USE FOR AERIAL APPLICATION:

Apply the recommended rate of FBN CLODINAFOP and the recommended rate of an adjuvant of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT in a minimum of 30 L of water per hectare according to the following table:

To Control: WILD OATS	To Control: WILD OATS GREEN FOXTAIL YELLOW FOXTAIL PERSIAN DARNEL
Apply: 230 mL/ha of FBN CLODINAFOP + 240 mL/ha of SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with 30 L/ha of water (0.8% volume/volume)	Apply: 290 mL/ha of FBN CLODINAFOP + 300 mL/ha of SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with 30 L/ha of water (1.0% volume/volume)

NOTE: Always use adjuvants of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT with FBN CLODINAFOP.

TANK MIXES of FBN CLODINAFOP WITH BROADLEAF WEED HERBICIDES – GROUND APPLICATION:

CROP: SPRING and DURUM WHEAT

TANK MIXES WITH BROADLEAF WEED HERBICIDES, IN SPRING WHEAT and DURUM

WHEAT:

For broad spectrum control of wild oats, green foxtail and broadleaf weeds, FBN CLODINAFOP can be tank-mixed with broadleaf herbicides as described in the following tables. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, recropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions and follow the more restrictive label. When tank-mixing always add the broadleaf herbicide(s) to the spray tank first; followed by FBN CLODINAFOP, with SCORE or ASSIST, or CROPOIL 83/17 ADJUVANT added last. For the appropriate rate of FBN CLODINAFOP with SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT, refer to the 'Rate of Use' section of the label.

Tank-Mix Partner	Product Rates	Crop Stage ¹
Dyvel®	1.25 L/ha	2 to 5 leaf
Refine Extra® ²	20 g/ha	2 leaf to flag leaf
Buctril® M	1.0 L/ha	2 leaf to flag leaf
Estaprop®	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Dichlorprop®-D	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Lontrel 360 tank mixed with MCPA Ester (assume 500 series)	280 to 420 mL/ha tank mixed with 1.1 L/ha	3 leaf to flag leaf
Curtail™ M	2.0 L/ha	3 leaf to just before flag leaf
Thumper® EC	1.0 L/ha	2 leaf to early flag leaf
2,4-D Amine (assume 500 series) ³	840 mL to 1.1 L/ha	3 leaf to flag leaf
MCPA Amine (assume 500 series) ³	840 mL to 1.1 L/ha	3 leaf to flag leaf
MCPA Ester (assume 500 series)	840 mL to 1.1 L/ha	3 leaf to flag leaf
Pardner®	1.0 L/ha	2 leaf to flag leaf
Ally® ²	7.5 g/ha	2 leaf to flag leaf
Attain® Herbicide Tank Mix	600 mL/ha of Attain A + 1.0 L/ha of Attain B	4 leaf to flag leaf

¹ Always consult the label of the broadleaf herbicide prior to use.

² Addition of surfactants other than Score, ASSIST, or CROPOIL 83/17 ADJUVANT is not required.

³ A reduction in control of green foxtail and wild oats may be observed when FBN CLODINAFOP is tank mixed with 2,4-D Amine and MCPA Amine.

Temporary crop injury may occur with tank-mixes under extreme weather conditions or when the crop is suffering from stress due to inadequate or abnormally high moisture level or extreme temperatures.

Do not tank-mix with any chemical additives, pesticides, or fertilizers that are not recommended on this label.

TANK MIXES OF FBN CLODINAFOP WITH BROADLEAF WEED HERBICIDES - AERIAL APPLICATION:

CROP: SPRING WHEAT and DURUM WHEAT

For broad spectrum control of wild oats, green foxtail and broadleaf weeds, FBN CLODINAFOP can be tank-mixed with Buctril M. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, recropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions and follow the more restrictive label. Use in a minimum of 30L of water per hectare.

Tank-mixes of FBN CLODINAFOP with broadleaf weed herbicides - Aerial application: When tank-mixing always add the broadleaf herbicide (Buctril M) to the spray tank first; followed by FBN CLODINAFOP, with an adjuvant of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT added last. For the appropriate rate of FBN CLODINAFOP with an adjuvant of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT refer to the 'Rate of Use for Aerial Application' section of the label.

Tank-Mix Partner	Product Rates	Crop Stage ¹
Buctril M	1.0 L/ha	2 leaf to flag leaf

¹ Always consult the label of the broadleaf partner prior to use.

BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:	
		Aquatic Habitat	Terrestrial habitat
Field sprayer*	Spring wheat and durum wheat	15	0
Aerial	Spring wheat and durum wheat	72	76

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING INSTRUCTIONS - GROUND APPLICATION:

1. Clean spray tank and half fill with clean water. Start agitation or bypass system.
2. If a broadleaf herbicide, insecticide or fungicide is to be used, add the product FIRST prior to adding FBN CLODINAFOP and agitate for 2-3 minutes.
3. Add correct amount of FBN CLODINAFOP.
4. Agitate for 2-3 minutes.
5. Add correct amount of either SCORE, ASSIST, or CROPOIL 83/17 ADJUVANT.
6. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
7. After any break in spraying operations, agitate thoroughly before spraying again.
8. **Use the spray suspension as soon as it is prepared.**
9. If an oil film starts to build up in the tank, drain tank and then clean with a detergent.

SPRAYING INSTRUCTIONS - GROUND APPLICATION:

1. FBN CLODINAFOP can be applied by ground or air. For aerial application instructions, refer to the section entitled "SPRAYING INSTRUCTIONS - AERIAL APPLICATION" which follows this section.

2. Water Volume: 50 to 100 litres per hectare when applied alone and a minimum of 100L/ha when tank-mixed with broadleaf herbicides
3. Spray Nozzles: 80° or 110° flat fan stainless steel nozzles are recommended for optimal spray coverage. Application of the spray mixture at a 45° angle in the direction of travel will result in improved spray coverage. Use 50 mesh nozzle screens. Do not use flood type nozzles, controlled droplet application equipment, spray foils or hollow cone nozzles.
4. Pressure: 275-310 kPa.
5. Apply uniformly at 6-8 km/hr and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from an over application.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call

Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

MIXING INSTRUCTIONS - AERIAL APPLICATION:

1. Fill the mixing tank 1/2 full with clean water. Start gentle agitation.
2. If a broadleaf herbicide is to be used, add the product FIRST prior to adding FBN CLODINAFOP and agitate for 2-3 minutes then add correct amount of FBN CLODINAFOP.
3. Agitate for 2-3 minutes.
4. Add correct amount of an adjuvant of either Score, Assist, or CROPOIL 83/17 ADJUVANT.
5. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
6. Fill aircraft spray tank and maintain gentle agitation while spraying.
7. After any break in spraying operations, agitate thoroughly before spraying again. Do not let contents stand without agitation.
- 8. Use the spray suspension as soon as it is prepared.**
9. If an oil film starts to build up in the tank, drain tank and then clean with a detergent.

SPRAYING INSTRUCTIONS - AERIAL APPLICATION:

1. FBN CLODINAFOP can be applied by ground or by air. For ground application instructions, refer to the section entitled "SPRAYING INSTRUCTIONS - GROUND APPLICATION" which precedes this section.
2. Water Volume - Aerial application: Minimum of 30 litres per hectare when applied alone or when tank mixed with Buctril M.
3. Ensure uniform application. To avoid uneven or overlapped application, use appropriate marking devices. Do not use human flaggers.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification, with a volume medium diameter (VMD) greater than 350 microns. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotor-span.

SPRAYER CLEAN-UP:

1. Thoroughly clean application equipment immediately after spraying. Ensure that all traces of the product are removed. The following recommendations are provided:
2. Drain and flush tank walls, boom and all hoses for ten minutes with clean water. Do not clean the sprayer near desirable vegetation, wells, or other water sources.
3. Remove the nozzles and screens and wash separately.
4. Dispose of all rinsings in accordance with provincial regulations.
5. If a broadleaf tank-mix partner is used, always check tank-mix partner label for any additional clean up procedures.

Resistance-Management Recommendations

For resistance management, FBN CLODINAFOP is a Group 1 herbicide. Any weed population may contain or develop plants naturally resistant to FBN CLODINAFOP and other Group 1 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of FBN CLODINAFOP or other Group 1 herbicides with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted.

Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.

Monitor treated weed populations for resistance development.

Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact the company Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or at www.fbn.com

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE IN THE OKANAGAN AND CRESTON FLATS REGION OF BC:

FBN CLODINAFOP can be used for the control of wild oats, green foxtail and yellow foxtail in spring wheat and durum wheat in the Okanagan and Creston Flats Regions of British Columbia. For information on crop and weed stages, rates of application, mixing and spraying instructions and precautions see the appropriate sections elsewhere on this label.

Product names marked ® or TM are registered trademarks of their respective companies.

2020-0486 2020-03-03

FBN Clethodim 240®

Use with FBN Clethodim Adjuvant

EMULSIFIABLE CONCENTRATE POST-EMERGENCE HERBICIDE

GROUP	1	HERBICIDE
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CONTAINS CLETHODIM

POST-EMERGENCE HERBICIDE FOR CONTROL OF GRASSES IN CANOLA, FLAX (including low linolenic acid varieties), FIELD PEAS, LENTILS, DESI and KABULI CHICKPEAS, DRY BULB ONIONS, POTATOES, YELLOW MUSTARD, ORIENTAL (BROWN) MUSTARD (condiment and oilseed types), SOYBEANS, SEEDLING ALFALFA, SUNFLOWERS, DRY COMMON BEANS (*Phaseolus vulgaris* varieties only), FENUGREEK, CORIANDER, SPINACH, PRAIRIE CARNATION, Highbush Blueberry, SAFFLOWER, CRANBERRY, DILL, CARAWAY, BASIL, RED GARDEN (TABLE) BEET, PARSNIP, CARROT AND RADISH.

AGRICULTURAL

ACTIVE INGREDIENT: CLETHODIM240 g/L

REGISTRATION NO. 33646 PEST CONTROL PRODUCTS ACT

WARNING: EYE AND SKIN IRRITANT

KEEP OUT OF REACH OF CHILDREN

READ THE LABEL AND BOOKLET BEFORE USING

NET CONTENTS: 1 Litre

Product Information: 1-844-200-FARM (3276)

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7

In case of spills, poisoning or fire, telephone emergency response number CANUTEC 613-996-6666 or *666 on a cellular phone. (24 hours a day).

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. CAUSES EYE AND SKIN IRRITATION.

Avoid

contact with skin, eyes and clothing. Wash concentrate from skin or eyes immediately. Do not inhale fumes. Avoid breathing vapours or spray mist. After use, wash hands and other exposed skin. When using, do not eat, drink or smoke. Remove and launder contaminated clothing separately from household laundry before reuse. Store the container tightly closed and away from seeds, feeds, fertilizer, plants and foodstuffs.

Observe appropriate provincial buffer zones around bodies of water and wetland areas. Wear a long-sleeved shirt, long pants, rubber apron, chemical-resistant gloves, socks and rubber boots during mixing, loading, application, clean-up and repair. Gloves and rubber apron are not required during application. In addition, wear goggles/face shield during mixing/loading and when handling the concentrate.

Application is limited to agricultural crops only when there is low risk to drift to areas of human habitation or activity such as houses, cottages, schools and recreation areas, taking into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specific under DIRECTIONS FOR USE.

Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product contains aromatic petroleum distillates that are toxic to aquatic organisms.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow.

FIRST AID:

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. Danger from lung aspiration of petroleum-based solvents must be weighed against toxicity when considering emptying stomach.

STORAGE AND DISPOSAL

STORAGE: To prevent contaminant, store this product away from food or feed.

DISPOSAL:

RECYCLABLE CONTAINER DISPOSAL: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site.

Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

DISPOSAL OF UNUSED, UNWANTED PRODUCT: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FBN Clethodim 240®

Use with FBN Clethodim Adjuvant

EMULSIFIABLE CONCENTRATE POST- EMERGENCE HERBICIDE

GROUP	1	HERBICIDE
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CONTAINS CLETHODIM

POST-EMERGENCE HERBICIDE FOR CONTROL OF GRASSES IN CANOLA, FLAX (including low linolenic acid varieties), FIELD PEAS, LENTILS, DESI and KABULI CHICKPEAS, DRY BULB ONIONS, POTATOES, YELLOW MUSTARD, ORIENTAL (BROWN) MUSTARD (condiment and oilseed types), SOYBEANS, SEEDLING ALFALFA, SUNFLOWERS, DRY COMMON BEANS (*Phaseolus vulgaris* varieties only), FENUGREEK, CORIANDER, SPINACH, PRAIRIE CARNATION, Highbush BLUEBERRY, SAFFLOWER, CRANBERRY, DILL, CARAWAY, BASIL, RED GARDEN (TABLE) BEET, PARSNIP, CARROT AND RADISH.

AGRICULTURAL

ACTIVE INGREDIENT: CLETHODIM240g/L

REGISTRATION NO. 33646 PEST CONTROL PRODUCTS ACT

WARNING: EYE AND SKIN IRRITANT

KEEP OUT OF REACH OF CHILDREN

READ THE LABEL AND BOOKLET BEFORE USING

NET CONTENTS: 1 LITRE

Product Information: 1-844-200-FARM (3276)

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7

In case of spills, poisoning or fire, telephone emergency response number 613-996-6666 or *666 on a cellular phone (24 hours a day).

GENERAL INFORMATION:

FBN Clethodim 240 is a selective post-emergence herbicide for control of a broad range of grasses in canola, flax (including low linolenic acid varieties), field peas, lentils, Desi and Kabuli chickpeas, dry bulb onions, potatoes, yellow mustard, oriental (brown) mustard (condiment and oilseed types), soybeans, seedling alfalfa, sunflowers, dry common beans (*Phaseolus vulgaris* varieties only), fenugreek, coriander, spinach, prairie carnation, highbush blueberry, safflower, cranberry, dill, caraway, basil, red garden(table) beet, parsnip, carrot and radish.

FBN Clethodim 240 is to be used only with the FBN Clethodim Adjuvant.

FBN Clethodim 240 is a systemic herbicide which is translocated from the treated foliage to the growing points of the leaves, shoots and roots. Uptake into the plant is primarily through its leaves. Thorough coverage of the foliage is important for consistent grass control. Susceptible grasses that are actively growing will undergo a burn-back and colour change after treatment. Leaf foliage will first change from green to yellowish, then purplish and finally brown colour. The time required for complete control is normally 7 to 21 days following treatment, depending on growing conditions and crop competition.

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. CAUSES EYE AND SKIN IRRITATION.

Avoid contact with skin, eyes and clothing. Wash concentrate from skin or eyes immediately. Do not inhale fumes. Avoid breathing vapours or spray mist. After use, wash hands and other exposed skin. When using, do not eat, drink or smoke. Remove and launder contaminated clothing separately from household laundry before reuse. Store the container tightly closed and away from seeds, feeds, fertilizer, plants and foodstuffs. Observe appropriate provincial buffer zones around bodies of water and wetland areas. Wear a long-sleeved shirt, long pants, rubber apron, chemical-resistant gloves, socks and rubber boots during mixing, loading, application, clean-up and repair. Gloves and rubber apron are not required during application. In addition, wear goggles/face shield during mixing/loading and when handling the concentrate.

Application is limited to agricultural crops only when there is low risk to drift to areas of human habitation or activity such as houses, cottages, schools and recreation areas, taking into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specific under DIRECTIONS FOR USE.

Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product contains aromatic petroleum distillates that are toxic to aquatic organisms.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow.

FIRST AID:

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do **not** give **any** liquid to the person. Do not give anything by mouth to an unconscious person. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia.

Danger from lung aspiration of petroleum-based solvents must be weighed against toxicity when considering emptying stomach.

STORAGE AND DISPOSAL

STORAGE: To prevent contaminant, store this product away from food or feed.

DISPOSAL:

RECYCLABLE CONTAINER DISPOSAL: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site.

Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

DISPOSAL OF UNUSED, UNWANTED PRODUCT: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

DIRECTIONS FOR USE:

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

TIME OF APPLICATION:

Apply **FBN Clethodim 240** when the annual grasses and volunteer cereals are in the 2 to 6 leaf stage as specified under Application Rates of FBN Clethodim 240. Most effective control is achieved when application is made prior to tillering when annual grasses are small and actively growing.

For suppression or control of quackgrass, apply **FBN Clethodim 240** when the quackgrass is in the 2 to 6 leaf stage and 6 to 15 cm in height. Most effective results are achieved when application is made at the 3 to 5 leaf stage, when the canopy is uniform and actively growing.

FBN Clethodim 240 will be less effective when plants are stressed by lack of moisture, excessive moisture, low-temperature and/or very low relative humidity. Regrowth by tillering may occur if application is made under any of the above stress conditions. In

wide row crops, where the canopy may be slow to close, cultivation may be necessary to control grasses that emerge after treatment.

Canola, flax (including low linolenic acid varieties), field peas, lentils, potatoes, yellow mustard, oriental (brown) mustard (condiment and oilseed types), soybeans, seedling alfalfa, sunflowers, dry common beans (*Phaseolus vulgaris* varieties only), highbush blueberry, coriander, caraway, basil, red garden (table) beet, parsnip, carrot and radish are tolerant to **FBN Clethodim 240** at all stages of growth. However, the pre-harvest interval outlined in the Crop Recommendations table must be followed to avoid excessive crop residues.

For Desi and Kabuli chickpeas, apply **FBN Clethodim 240** at a maximum of one application per season before the crop reaches the 9 node stage (18 cm height maximum) and when the annual grasses and volunteer cereals are in the 2 to 6 leaf stage.

For fenugreek and dill, apply FBN Clethodim 240 post-emergence, when fenugreek and dill are in the 3 - 5 leaf stage. Apply a maximum of one application may be made per season.

For coriander or prairie carnation, apply FBN Clethodim 240 post-emergence, when coriander or prairie carnation is in the 2 - 5 leaf stage. A maximum of one application may be made per year.

For safflower, apply FBN Clethodim 240 post-emergence, when safflower is in the 6-8 leaf stage at a maximum of one application per season.

Cranberry is tolerant to **FBN Clethodim 240** at all stages of growth, however do not apply FBN Clethodim 240 between the hook stage and full fruit set.

For dry bulb onions, apply FBN Clethodim 240 post-emergence, when crops are in the 1-4 leaf stage.

APPLICATION RATES OF FBN Clethodim 240:

Rates of use are given below to control various grass species. Refer to crop section for the maximum use rate on each crop.

Grass Species	Leaf Stage	Application Rate of FBN Clethodim 240®	Application Rate of FBN Clethodim Adjuvant.
*Foxtail (green, yellow) Wild oats Volunteer cereals (wheat, barley, oats)	2-4	0.125 L/ha	0.5% v/v

Barnyard Grass Witchgrass Fall panicum Proso millet Volunteer Corn Volunteer canary grass	2-6	0.125 L/ha	0.5% v/v
Wild Oats Volunteer cereals (wheat, barley, oats) Foxtail (green, yellow) Persian darnel Crabgrass (smooth and large) Proso millet Witchgrass Fall panicum Barnyard grass Volunteer corn Volunteer canary grass Quackgrass suppression	2-6	0.19 L/ha	0.5% v/v
Quackgrass Control**	2-6	0.38 L/ha	1.0% v/v

* **FBN Clethodim 240** applied at 0.125 L/ha for the control of weeds listed in this section of the table should only be applied under the following conditions:

- Good crop stand
- Early application (as in above table, prior totillering)
- Do not tank-mix with other pesticides
- Do not apply to volunteer winter cereals
- Light to moderate weed infestation
- Adequate moisture and fertility
- Absence of stress, good growing conditions

If any one of the above conditions are not present at the time of application, use 0.19 L/ha rate of **FBN Clethodim 240**.

**For adequate control of quackgrass use a minimum spray volume of 100 L/ha.

CROP RECOMMENDATIONS:

Crops	Maximum Application Rate of FBN Clethodim 240	Application Method⁷	Pre-Harvest Interval
Canola	0.38 L/ha	Ground and aerial application	60 days
Flax (including low linolenic acid varieties)	0.38 L/ha	Ground and aerial application	60 days
Field Peas	0.38 L/ha	Ground and aerial application	75 days
Lentils	0.38 L/ha	Ground and aerial application	60 days
Desi and Kabuli Chickpeas	0.19 L/ha	Ground and aerial application	60 days
Potatoes	0.38 L/ha	Ground and aerial application	60 days
Yellow Mustard	0.38 L/ha	Ground and aerial application	60 days
Oriental (Brown) Mustard (condiment and oilseed types)	0.38 L/ha	Ground and aerial application	60 days
Soybeans	0.38 L/ha	Ground and aerial application	75 days
Seedling Alfalfa	0.38 L/ha	Ground application only	30 days
Sunflowers	0.38 L/ha	Ground and aerial application	72 days
Dry Common Beans ^{1,2} (<i>Phaseolus vulgaris</i> varieties only)	0.19 L/ha	Ground and aerial application	60 days
Basil ^{1,2,4,5}	0.19 L/ha	Ground application only	30 days
Caraway ^{1,5,6}	0.38 L/ha	Ground application only	60 days
Coriander ^{1,5,6}	0.38 L/ha	Ground application only	60 days
Cranberry ^{1,2,5}	0.38 L/ha	Ground application only	30 days
Dill ^{1,5}	0.38 L/ha	Ground application only	40 days

Dry Bulb Onions ^{1,5}	0.38 L/ha	Ground application only	45 days
Fenugreek ^{1,5,6}	0.38 L/ha	Ground application only	30 days
Highbush Blueberry ^{1,4,5}	0.38 L/ha	Ground application only	14 days
Prairie Carnation ^{1,5,6}	0.19 L/ha	Ground application only	N/A
Red garden (table) beet, parsnip, carrot, radish ^{3,5}	0.38 L/ha	Ground application only	30 days
Safflower ^{1,5}	0.38L/ha	Ground application only	70 days
Spinach ^{3, 5}	0.19L/ha	Ground application only	14 days

1. Apply a maximum of one application per year.
2. NOTE: Varieties of this crop may vary in their tolerance to herbicides, including to FBN Clethodim 240. Since not all crop varieties have been tested for tolerance to FBN Clethodim 240, first use of FBN Clethodim 240 should be limited to a small area of each variety to confirm tolerance prior to adoption as a general field practice. Additionally, consult your supplier for information on the tolerance of specific varieties to FBN Clethodim 240.
3. Apply a maximum of two applications per year. If repeat application is required, allow at least 14 days between first and second application.
4. Apply FBN Clethodim 240 as a broadcast spray directed to the ground.
5. Refer to section "MINOR USES" in this label for additional use instructions.
6. Do not harvest treated Prairie Carnations or greens of treated fenugreek as a vegetable or leaves of treated coriander (cilantro) and caraway for human consumption.
7. SPRAY VOLUME FOR AERIAL APPLICATION: Apply in 28 to 55 L/ha. Increase spray volumes up to 100 L/ha as grass or crop foliage becomes dense.

TANK-MIXES:

When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

FBN Clethodim 240 AND BUCTRIL® M:

Flax (including low linolenic acid varieties): FBN Clethodim 240 may be tank-mixed with BUCTRIL M for control of certain broadleaf and grassy weeds in flax (including low linolenic acid varieties) in one spray operation. Apply in 55 - 110 litres of water per hectare at a spray pressure of 275 kPa. DO NOT spray this tank-mix on plants under stress. DO NOT spray during periods of hot, humid weather. Follow all precautions, limitations and timing recommendations on the BUCTRIL M label. The most stringent label precautions for any individual pesticide product in a tank-mix should be used.

Time of Application: Flax (including low linolenic acid varieties) may be treated from 5 cm high to the early bud stage. For best results, apply when flax (including low linolenic acid varieties) is 5 cm to 10 cm high and weeds are in the seedling stage. If broadleaf weeds and grassy weeds are not in the recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 - 0.38 L/ha tank-mixed with BUCTRIL M at 1.0 L/ha and the FBN Clethodim Adjuvant at 0.5% - 1.0% v/v.

Weeds Controlled: As listed for **FBN Clethodim 240** used alone, plus certain seedling broadleaf weeds. Refer to the BUCTRIL M label for the broadleaf weeds controlled.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- If tank-mixing **FBN Clethodim 240** and BUCTRIL M for once-over grass and broadleaf weed control in flax (including low linolenic acid varieties), add the correct amount of BUCTRIL M. Continue to agitate.
- Add the correct amount of FBN Clethodim 240. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

For disposal of cleaning solution, see section on DISPOSAL.

FBN Clethodim 240 AND CURTAIL® M:

Flax (including low linolenic acid varieties): FBN Clethodim 240 may be tank-mixed with CURTAIL M for control of certain broadleaf and grass weeds in flax in one spray operation. Apply in a minimum of 100 L/ha spray volume at a pressure of 275 kPa.

Follow all precautions, limitations, restrictions and timing recommendations on the CURTAIL M label.

Time of Application: Flax may be treated from 5 to 15 cm in height. Apply when the grassy weeds are in the 2-6 leaf stage and the broadleaf weeds are actively growing. Application to Canada thistle should be made when Canada thistle is between 10 cm and up to the pre-bud stage. If broadleaf weeds and grass weeds are not in recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 L/ha tank-mixed with CURTAIL M at 1.5 to 2.0 L/ha and with the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: Weed claims listed on the FBN Clethodim 240 Herbicide label plus weed claims listed on Curtail M label. Refer to the CURTAIL M label for the broadleaf weeds controlled.

Grazing Interval

Do not cut treated crops for feed or graze until 60 days after application.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the required amount of CURTAIL M to the tank. Continue to agitate.
- Add the correct amount of FBN Clethodim 240. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight. In the case of tank mixtures with broadleaf herbicides, settling will occur if agitation is not continuous.
- If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

FBN Clethodim 240 AND MCPA ESTER:

Flax: FBN Clethodim 240 may be tank-mixed with MCPA ESTER for control of certain broadleaf and grassy weeds in flax in one spray operation. For ground applications, apply in a minimum of 100 L/ha spray volume at a pressure of 275 kPa. For aerial application apply this tank-mix in a minimum of 30 L/ha spray volume at a pressure of 235 kPa.

NOTE: THIS TANK-MIX MAY NOT BE APPLIED TO LOW LINOLENIC ACID VARIETIES OF FLAX.

Time of Application: Flax may be treated from 5 cm tall to just before the bud stage. Do not apply after the early bud stage. Apply when the grassy weeds are in the 2-6 leaf stage and broadleaf weeds are in the seedling stage and actively growing. If broadleaf weeds and grassy weeds are not in the recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 - 0.38 L/ha tank-mixed with MCPA ESTER and the FBN Clethodim Adjuvant at 0.5% - 1.0% v/v.

Weeds Controlled: As listed for FBN Clethodim 240 used alone, plus certain seedling broadleaf weeds. Refer to the MCPA ESTER label for the rates and broadleaf weeds controlled and specific information on flax.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the correct amount of MCPA ESTER. Continue to agitate.
- Add the correct amount of FBN Clethodim 240. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

FBN Clethodim 240 AND LONTREL® 360:

Flax (including low linolenic acid varieties): FBN Clethodim 240 may be tank-mixed with LONTREL 360 for control of certain broadleaf and grass weeds in flax in one spray operation. Apply in a minimum of 100 L/ha spray volume at a pressure of 275 kPa.

Follow all precautions, limitations and timing recommendations on the LONTREL 360 label.

Time of Application: Flax may be treated from 5 cm to 10 cm in height. Apply when the grassy weeds are in the 2-6 leaf stage and the broadleaf weeds are actively growing. Application to Canada thistle should be made when Canada thistle is in the rosette to pre-bud stage of growth. If broadleaf weeds and grass weeds are not in recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 L/ha tank-mixed with LONTREL 360 at 0.56 to 0.83 L/ha and with the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer oats, wild buckwheat.

Canada thistle	0.56 L LONTREL 360/ha	Season-long control
	0.83 L LONTREL 360/ha	Control extended into following year.

MIXING INSTRUCTIONS: For mixing instructions, refer to FBN Clethodim 240 and LONTREL 360 tank-mix on canola.

Canola: FBN Clethodim 240 may be tank-mixed with LONTREL 360 for control of certain broadleaf and grass weeds in canola in one spray operation. Apply in a minimum of 100 L/ha spray volume at a pressure of 275 kPa. Follow all precautions, limitations and timing recommendations on the LONTREL 360 label.

Time of Application: Canola may be treated from the 2 to 6 leaf stage. Apply when the grassy weeds are in the 2 to 6 leaf stage and the broadleaf weeds are actively growing. Application to Canada thistle should be made when Canada thistle is in the rosette to pre-bud stage of growth. If broadleaf weeds and grass weeds are not in recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 L/ha tank-mixed with LONTREL 360 at 0.42 to 0.83 L/ha and with the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer oats.

Wild Buckwheat	0.56 L LONTREL 360/ha	Season-long control
Canada thistle	0.42 L LONTREL 360/ha	Top growth control to 6 - 8 weeks
	0.56 L LONTREL 360/ha	Season-long control
	0.83 L LONTREL 360/ha	Control into following year.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the required amount of LONTREL 360 to the tank. Continue to agitate.
- Add the correct amount of FBN Clethodim 240. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight. In the case of tank mixtures with broadleaf herbicides, settling will occur if agitation is not continuous.
- If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

FBN Clethodim 240 AND PURSUIT®:

Field Peas: FBN Clethodim 240 may be tank-mixed with PURSUIT for control of certain broadleaf and grassy weeds in field peas in one spray operation. Apply in a minimum of 100 litres of water per hectare at a spray pressure of 275 kPa. Follow all precautions, limitations and timing recommendations on the PURSUIT label.

Time of Application: Field peas may be treated up to the sixth (6th) trifoliate leaf stage. Apply when volunteer wheat, volunteer barley, wild oats and green foxtail are in the 2-6 leaf stage. Apply up to the 4-leaf stage for control of broadleaf weeds. If broadleaf weeds and grassy weeds are not in the recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 L/ha tank-mixed with PURSUIT at 210 mL/ha and the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: Wild oats, green foxtail, volunteer barley, volunteer wheat plus the weeds as listed on the PURSUIT label.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- If tank-mixing **FBN Clethodim 240** and PURSUIT for once over grass and broadleaf weed control in field peas, add the correct amount of PURSUIT. Continue to agitate.
- Add the required amount of **FBN Clethodim 240** to the tank. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

Imazethapyr Tolerant Canola (e.g. canola varieties with the SMART trait): FBN Clethodim 240 may be tank-mixed with PURSUIT for control of certain broadleaf and grassy weeds in imazethapyr-tolerant canola varieties in one spray operation. Apply in a minimum of 100 litres of water per hectare at a spray pressure of 275 kPa. Follow all precautions, limitations and timing recommendations on the PURSUIT label.

Time of Application: Imazethapyr-tolerant canola varieties may be treated after the crop has developed one (1) fully expanded leaf. Apply when grassy weeds are in the 2 to 6-leaf stage. Apply up to the 4-leaf stage for control of broadleaf weeds.

Application Rate: FBN Clethodim 240 at 0.19L/ha tank-mixed with PURSUIT at 0.105 or 0.21 L/ha and the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: As listed for FBN Clethodim 240 plus the following additional weeds.

PURSUIT at 0.105 L/ha for control of chickweed, hempnettle, redroot pigweed*, stinkweed, volunteer canola (not imazethapyr-tolerant), wild mustard and wild buckwheat*, in the 1 to 4-leaf stage.

*For the control of light infestations only. For heavy infestations, use the 0.21 L/ha rate of PURSUIT.

PURSUIT at 0.21 L/ha for control of weeds as listed on the PURSUIT label.

MIXING INSTRUCTIONS: For mixing instructions, refer to FBN Clethodim 240 and PURSUIT tank-mix on field peas.

FBN Clethodim 240 AND MUSTER®:

Canola: FBN Clethodim 240 may be tank-mixed with MUSTER for control of certain broadleaf and grassy weeds in canola in one spray operation. Apply in a minimum of 100 litres of water per hectare at a spray pressure of 275 kPa. Follow all precautions, limitations and timing recommendations on the MUSTER label.

Time of Application: Canola may be treated from the 2 leaf stage to the beginning of bolting. Apply when the grassy weeds are in the 2 to 6 leaf stage and when the broadleaf weeds are in the cotyledon to 6 leaf stage. If broadleaf weeds and grassy weeds are not in the recommended treatment stage at the same time, then separate applications should be made.

Application Rate: FBN Clethodim 240 at 0.19 L/ha tank-mixed with MUSTER at 20 or 30 g/ha and the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled:

Muster at 20 or 30 g/ha: Wild oats, green foxtail, volunteer barley, volunteer oats, volunteer wheat, hempnettle, wild mustard, green smartweed, flixweed (spring seedlings), stinkweed*, and redroot pigweed.

* *Stinkweed suppression at the lower rate. Apply to stinkweed in the 1 to 4 leaf stage.*

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the required amount of MUSTER to the tank. Continue to agitate.
- Once MUSTER is in suspension, add the required amount of **FBN Clethodim 240**. Continue to agitate.
- Add the correct amount of FBN Clethodim Adjuvant along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system.
- On repeat tankloads, prepare a MUSTER/water slurry and add to required water volume in the spray tank prior to adding **FBN Clethodim 240** and FBN Clethodim Adjuvant.

- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight.
- Immediately after use, refer to MUSTER label for appropriate tank cleanout instructions.

FBN Clethodim 240 AND LIBERTY® 150 SN – PRAIRIE PROVINCES AND THE INTERIOR OF BRITISH COLUMBIA ONLY

Canola: For use on Glufosinate Ammonium tolerant canola varieties only (e.g. varieties or hybrids labelled LIBERTYLINK).

FBN Clethodim 240 may be tank-mixed with LIBERTY 150 SN Herbicide for control of certain broadleaf and grass weeds in Glufosinate Ammonium tolerant canola varieties in one spray operation. For ground applications, apply in a minimum of 110 L/ha spray volume at a pressure of 275 kPa. For aerial applications apply this tank-mix in a minimum of 55 L/ha spray volume at a pressure of 300 kPa.

Follow all precautions, limitations and timing recommendations on the LIBERTY 150 SN Herbicide label.

Time of Application: Glufosinate Ammonium tolerant canola varieties may be treated from the cotyledon stage up to the early bolting stage. Apply when the wild oats, volunteer wheat, volunteer oats and green foxtail are in the 1 – 5 leaf stage. Refer to the LIBERTY 150 SN Herbicide label for application timing on all remaining grass and broadleaf weeds for 2.67 or 4.0 L/ha.

Application Rate: **FBN Clethodim 240** at 63 mL/ha tank-mixed with LIBERTY 150 SN Herbicide at 2.67 to 4.0 L/ha and with the **FBN Clethodim Adjuvant** at 0.5% v/v.

Weeds Controlled: Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer oats plus all remaining grass weeds and broadleaf weeds listed on the LIBERTY 150 SN Herbicide label at the application rates of 2.67 and 4.0 L/ha.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the required amount of **FBN CLETHODIM ADJUVANT** to the tank. Continue to agitate until thoroughly mixed.
- STOP agitation. Add the correct amount of **LIBERTY 150 SN Herbicide** to the spray tank. Start agitation system.
- Add the correct amount of **FBN Clethodim 240** along with the remaining amount of water necessary to fill the spray tank.

- Continue to agitate or run the by-pass system and spray out immediately.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight. In the case of tank mixtures with broadleaf herbicides, settling will occur if agitation is not continuous.
- If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

FBN Clethodim 240 AND LIBERTY® 200 SN – EASTERN CANADA AND BRITISH COLUMBIA ONLY

Canola: For use on Glufosinate Ammonium tolerant canola varieties only (e.g. varieties or hybrids labelled LIBERTYLINK).

FBN Clethodim 240 may be tank-mixed with LIBERTY 200 SN Herbicide for control of certain broadleaf and grass weeds in Glufosinate Ammonium tolerant canola varieties in one spray operation. Apply in a minimum of 110 L/ha spray volume at a pressure of 275 kPa. Follow all precautions, limitations and timing recommendations on the LIBERTY 200 SN Herbicide label.

Time of Application: Glufosinate Ammonium tolerant canola varieties may be treated from the cotyledon stage up to the early bolting stage. Apply when the wild oats, volunteer wheat, volunteer oats and green foxtail are in the 1 – 5 leaf stage. Refer to the LIBERTY 200 SN Herbicide label for application timing on all remaining grass and broadleaf weeds for 2.0 or 2.5 L/ha.

Application Rate: **FBN Clethodim 240** at 63 mL/ha tank-mixed with LIBERTY 200 SN Herbicide at 2.0 to 2.5 L/ha and with the FBN Clethodim Adjuvant at 0.5% v/v.

Weeds Controlled: Wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer oats plus all remaining grass weeds and broadleaf weeds listed on the LIBERTY 200 SN Herbicide label at the application rates of 2.0 and 2.5 L/ha.

MIXING INSTRUCTIONS:

- Thoroughly clean the sprayer by flushing the system with water containing detergent.
- Fill clean spray tank half full with clean water. Start agitation system.
- Add the required amount of **FBN CLETHODIM ADJUVANT** to the tank. Continue to agitate until thoroughly mixed.
- STOP agitation. Add the correct amount of **LIBERTY 200 SN Herbicide** to the spray tank. Start agitation system.

- Add the correct amount of **FBN Clethodim 240** along with the remaining amount of water necessary to fill the spray tank.
- Continue to agitate or run the by-pass system and spray out immediately.
- After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to re-mix the spray materials. Do not allow the mixture to sit overnight. In the case of tank mixtures with broadleaf herbicides, settling will occur if agitation is not continuous.
- If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
- Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

MINOR USES:

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS (BELOW): The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Farmer’s Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer’s Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.				
CROP	Weeds controlled	Application rate of FBN Clethodim 240	Application rate of FBN Clethodim Adjuvant	REMARKS
DRY BULB ONIONS	Annual weeds listed on FBN Clethodim 240 label and suppression of annual bluegrass at the 2-6 leaf stage.	0.38 L/ha	0.5% v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post- emergent when the crop is in the 1- 4 leaf stage. Apply by ground application. One application per year.</p> <p>Observe a PHI of 45 days.</p> <p>Ground application only.</p>
FENUGREEK	Annual weeds listed on FBN Clethodim 240 label.	Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post- emergent when fenugreek is in the 3 - 5 leaf stage. Apply a maximum of one application per season, using ground equipment.</p> <p>Observe a PHI of 30 days.</p> <p>Do not graze or feed FBN Clethodim 240-treated fenugreek forage to livestock. Do not use the greens of treated fenugreek as a vegetable for human consumption.</p> <p>Ground application only.</p>

CORIANDER, CARAWAY	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	0.5 – 1.0 % v/v Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	TIME OF APPLICATION: Apply a maximum of one application per year, post-emergent using ground equipment. Apply in a minimum spray volume of 100 L/ha. Observe a PHI of 60 days. Do not harvest leaves of treated coriander (cilantro) and caraway for human consumption. Ground application only.
SPINACH	Annual weeds listed on FBN Clethodim 240 Label.	Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	Refer to FBN Clethodim 240 + FBN CLETHODIM ADJUVANT weed/rate chart in this label.	TIME OF APPLICATION: Apply a maximum of two applications per year with 14 days between applications, post emergent by ground application when grassy weeds are in the 2-6 leaf stage. Observe a PHI of 14 days. Ground application only.

CROP	Weeds controlled	Application rate of FBN Clethodim 240	Application rate of FBN Clethodim Adjuvant	REMARKS
PRAIRIE CARNATION	Annual weeds listed on FBN Clethodim 240 label. Refer to weed/rate chart in this label.	0.19 L/ha	0.5% v/v	TIME OF PPLICATION: Apply FBN Clethodim 240 post-emergence of weeds and crop. Apply a maximum of one application per year using ground equipment. Apply in a minimum spray volume of 110 L/ha. Do not harvest treated prairie carnations for human consumption. Ground application only.
HIGHBUSH BLUEBERRY	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha	0.5 – 1.0 % v/v	TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergence of weeds and crop. Apply a maximum of one application per year, post-emergent by ground equipment. Apply as a broadcast spray directed to the ground. Apply in a minimum spray volume of 100 L/ha. Observe a PHI of 14 days.

				Ground application only.
SAFFLOWER	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha	0.5 – 1.0 % v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergent when safflower is in the 6 - 8 leaf stage. Apply a maximum of one application per season, using ground equipment. Apply in a minimum spray volume of 100 litres of water per hectare.</p> <p>Observe a PHI of 70 days.</p> <p>Ground application only.</p>
CRANBERRY	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha	0.5 – 1.0 % v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergence of weeds and crop. Do not apply between the hook stage and full fruit set. Apply a maximum of one application per year using ground equipment. Apply in a minimum spray volume of 110 litres of water per hectare.</p> <p>Observe a PHI of 30 days.</p> <p>Ground application only.</p>

CROP	Weeds controlled	Application rate of FBN Clethodim 240	Application rate of FBN Clethodim Adjuvant	REMARKS
DILL	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha	0.5 – 1.0 % v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergence when dill is in the 3-5 leaf stage. Apply a maximum of one application per year using ground equipment. Apply in a minimum spray volume of 100 L/ha.</p> <p>Do not harvest dillweed or dill seed within 40 days of application.</p> <p>Ground application only.</p>

RED GARDEN (TABLE) BEET, PARSNIP, CARROT, RADISH	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 – 0.38 L/ha	0.5 – 1.0 % v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergence of weeds and crop using ground equipment. Apply a maximum of two applications per year. If repeat application is required, allow at least 14 days between first and second application. Do not apply more than 0.38 L/ha (90 grams a.i./ha) per crop per season. Apply in a minimum spray volume of 110 L/ha.</p> <p>Observe a PHI of 30 days.</p> <p>Ground application only.</p>
BASIL	Labelled grassy weeds. Refer to weed/rate chart in this label.	0.19 L/ha	0.5% v/v	<p>TIME OF APPLICATION: Apply FBN Clethodim 240 post-emergence of weeds and crop. Apply a maximum of one application per year using ground equipment. Apply as a broadcast spray directed to the ground. Apply in a minimum spray volume of 110 L/ha.</p> <p>Observe a PHI of 30 days.</p> <p>Ground application only.</p>

APPLICATION INSTRUCTIONS:

GROUND APPLICATION:

Water volume and spray pressure:

For ground application, use sprayers equipped with standard flat fan nozzles. For optimum spray coverage, use nozzles tilted 45° forward.

The use of flood jet or hollow cone nozzles is not recommended, because of uneven and inadequate spray coverage. Thorough and uniform spray coverage over the entire leaf area of the target weeds is necessary for optimum weed control.

Thoroughly clean all screens to prevent nozzle clogging, especially when water volumes of 55 to 110 L/ha are used.

For ground applications, use spray volumes of 55 to 225 L/ha and a minimum of 275 kPa pressure. For applications to dense weed infestations or to dense crop canopies, use a minimum of 110 litres of water per hectare at pressures of 275 to 425 kPa. In any situation, ensure the proper rate of FBN CLETHODIM ADJUVANT is maintained as listed on the label under APPLICATION RATES OF **FBN Clethodim 240**.

For dry common beans (*Phaseolus vulgaris* varieties only), a minimum spray volume of 110 L water/ha is recommended.

AERIAL APPLICATION:

- Apply FBN Clethodim 240 alone or in tank mixes (ONLY with the recommended tank mix partners that are registered for aerial use) in no less than 28 L/ha spray volume at a pressure no less than 300 kPa.
- Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.
- Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended on this label.
- When applying **FBN Clethodim 240** by aircraft, uniform coverage is essential. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Aerial Use Precautions

- Read and understand the entire label before opening this product. If you have questions, call Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative.
- Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.
- Do not apply to terrain where there is a potential for surface run-off to enter aquatic systems.
- Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.
- Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift.
- Do not apply when wind speed is greater than 16 km/h at a flying height at the site of application.
- Do not apply with spray droplets smaller than ASAE medium classification.

Aerial Operator Precautions:

- Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.
- It is desirable that the pilots have communication capabilities at each treatment site at the time of application.

- The field crew and the mixer/loaders must wear a long-sleeved shirt, long pants, rubber apron, chemical-resistant gloves, goggles/face shield, socks and rubber boots. All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions:

- Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 10 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Buffer zones:

Spot treatments using hand-held equipment **DO NOT** require a buffer zone. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of application	Crop		Buffer Zones (meters) Required for the Protection of:		
			Freshwater Habitat of Depths		Terrestrial Habitat
			Less than 1m	Greater than 1m	
Field sprayer	All crops		1	1	1
Aerial	Canola, flax (including low linolenic acid varieties), field peas, lentils, potatoes, Oriental (brown) mustard (condiment and oilseed types), yellow mustard, soybeans, sunflowers, Brassica carinata, dry bulb onions, garlic	Fixed wing	5	1	40
		Rotary wing	5	1	35
	Dry common beans, Desi and Kabuli chickpeas	Fixed wing	1	1	20
		Rotary wing	1	1	20

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

ROTATIONAL CROP RESTRICTIONS

- A 30-day plant-back interval should be observed for all unlabelled crops.

RESTRICTIONS AND LIMITATIONS:

- Use only for crops listed on the label.
- Thorough preplant tillage operations are required to fields where sod or forage grass crops may have grown in the previous year.
- Take necessary precautions to avoid sprayer overlaps.
- Rainfall within one hour of application may reduce the effectiveness of the spray.

- Do not mix or apply **FBN Clethodim 240** with any other additive, pesticide or with fertilizer except as specifically recommended on the label.
- Allow 4 days between application of **FBN Clethodim 240** and any other chemical not recommended as a tank-mix combination on the label.
- Do not apply more than 0.38 L/ha (90 grams a.i./ha) per season.
- Do not use crops for grazing of livestock or green feed following application of **FBN Clethodim 240** until after the appropriate interval as specified in the crop recommendations table has been observed. Do not cut treated crops for forage until the appropriate interval as specified in the crop recommendations table has been observed.
- FBN Clethodim 240 may be applied by air for certain crops specified in this label.
- Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
- Not for use in greenhouses.

HERBICIDE RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, FBN Clethodim 240 is a Group 1 herbicide. Any weed population may contain or develop plants naturally resistant to FBN Clethodim 240 and other Group 1 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of FBN Clethodim 240 or other Group 1 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. or phone 1-844-200-FARM (3276).

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

BUCTRIL® is a registered trademark of Bayer.

LONTREL® 360 and CURTAIL are registered trademarks of Dow AgroSciences LLC.

MUSTER® is a registered trademark of FMC Corporation.

LIBERTY® and PURSUIT® are registered trademarks of BASF.

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GROUP	10	HERBICIDE
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FBN Glufosinate 150

SOLUTION

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER
REGION AND THE INTERIOR OF BRITISH COLUMBIA ONLY**



POISON

COMMERCIAL

WARNING – SKIN and EYE IRRITANT

ACTIVE INGREDIENT: glufosinate ammonium150 g/L

REGISTRATION NUMBER 33693.....PEST CONTROL PRODUCTS ACT

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M4
1-844-200-FARM (3276)

Product Information: 1-844-200-FARM (3276)

NET CONTENTS: 10 - 1000 L

PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN. Harmful or fatal if absorbed through the skin. Harmful if swallowed. This product may cause eye irritation. **DO NOT** get in eyes, on skin or on clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

- Wear protective clothing including a long sleeved shirt, long pants, goggles, chemical resistant gloves, and respirator when handling or spraying.

- Wear chemical resistant gloves for cleanup and repair.

- Workers should not enter treated fields within 24 hours of treatment. Workers who must enter fields within this time period should wear long-sleeved shirt, long pants and chemical resistant gloves.

- Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.** Keep in original container during storage. Do not contaminate water supply, ponds, lakes, streams and irrigation ditches by direct application, spray drift or when cleaning and rinsing spray equipment or containers.

CAUTION: Do not mix FBN Glufosinate 150 with pesticides, fertilizers or any other chemical additives unless recommended on this label.

ENVIRONMENTAL PRECAUTIONS:

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under **DIRECTIONS FOR USE.** Do not contaminate these systems through direct application, disposal of waste or cleaning equipment. Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.**

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice

TOXICOLOGICAL INFORMATION: Treat symptomatically. Medical personnel should contact CANUTEC collect at 1-613-996-6666 or *666 24 hours a day.

STORAGE: CANNOT be stored below freezing. If stored for one year or longer, shake well before using. Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs. Do not use or store in or around the home. Keep in original container during storage.

DISPOSAL: Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.

2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container Disposal: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Disposal of Unused, Unwanted Product: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Disposal of Unused Spray Solution: If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Transportation of Dangerous Goods Classification: PESTICIDES, LIQUID, TOXIC, N.O.S. (GLUFOSINATE-AMMONIUM), CLASS 6.1, UN2902, P.G. III

GROUP	10	HERBICIDE
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FBN Glufosinate 150

SOLUTION

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER
REGION AND INTERIOR OF BRITISH COLUMBIA ONLY**



POISON

COMMERCIAL

WARNING – SKIN and EYE IRRITANT

ACTIVE INGREDIENT: glufosinate ammonium.....150 g/L

REGISTRATION NUMBER 33693..... PEST CONTROL PRODUCTS ACT

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M4
1-844-200-FARM (3276)

Contact number: 1-844-200-FARM (3276)

NET CONTENTS: 10 - 1000 L

GENERAL INFORMATION

FBN Glufosinate 150 may be used as a harvest aid (desiccant) in the listed crops. FBN Glufosinate 150 will also desiccate weeds present in the field at application.

Desiccation of crops and weeds will be best when environmental conditions are favourable (warm temperatures, good moisture conditions, high humidity). The speed of action of FBN Glufosinate 150 is influenced by environmental factors. At cool temperatures (below 10°C), poor moisture and low humidity, speed of action may be reduced. Generally, visual symptoms appear 2 to 4 days after application.

When a rate range is given the higher rate should be utilised:

- 1) when crop or weed growth is dense.
- 2) when environmental conditions are cool and dry.

If rainfall occurs within 4 hours of application, effectiveness may be reduced.

FBN Glufosinate 150 is a non-selective herbicide. Avoid contact with desirable plants either from direct application or from spray drift as severe damage may occur.

FBN Glufosinate 150 works primarily as a contact herbicide. Thorough coverage of the plant tissue to be desiccated or controlled is essential.

FBN Glufosinate 150 breaks down rapidly in the soil.

There are no cropping or rotational restrictions after application. Grain and meal from treated crops can be fed to livestock.

DO NOT graze or feed other portions of the treated crop to livestock; there are not sufficient data to support such use.

MIXING INSTRUCTIONS

FBN Glufosinate 150 must be applied with properly calibrated clean equipment.

FBN Glufosinate 150 is specially formulated to mix readily in water. Prior to adding FBN Glufosinate 150 to the spray tank, ensure that the spray tank is thoroughly clean (see "CLEANING INSTRUCTIONS").

1. Fill tank one-half full of clean water prior to adding FBN Glufosinate 150.
2. Add the correct amount of FBN Glufosinate 150.
3. Add the remaining amount of water, begin agitation, and spray out immediately.

NOTE: Ensure that all circuits (pipes, booms, etc.) have the correct FBN Glufosinate 150 /water concentration before application is started.

NOTE: The addition of an anti-foaming agent may reduce foaming, especially when using soft water.

CLEANING INSTRUCTIONS

Before and after using FBN Glufosinate 150 always complete a thorough cleaning of the spray tank, lines and filter. Spray equipment should be thoroughly rinsed using a strong detergent solution.

HARVEST AID - DESICCATION

GROUND APPLICATION

Apply FBN Glufosinate 150 in a minimum of 110 litres of water per hectare at a pressure of 275 kPa and at a ground speed of 6 to 8 km/h. If check valves are used, apply at 310 kPa. The use of 80° or 110° flat fan nozzles is highly recommended for optimum spray coverage and canopy penetration.

Where crop canopy is dense, or weed growth is heavy, better spray coverage will be achieved with higher spray volumes. Under these conditions, apply 170-220 litres of water per hectare.

- DO NOT USE FLOOD JET NOZZLES, CONTROLLED DROPLET APPLICATION EQUIPMENT OR AIR-ASSISTED SPRAY EQUIPMENT.

- UNIFORM, THOROUGH SPRAY COVERAGE IS IMPORTANT TO ACHIEVE CONSISTENT CROP DESICCATION AND WEED CONTROL.

Application of the spray at a 45° angle forward will result in better spray coverage. Follow directions elsewhere on the label for the correct rate and timing of application.

Leave a 15 metre buffer between the edge of the treated field and adjacent crops or environmentally sensitive areas (for instance: wetlands, sloughs, rivers or other open bodies of water, shelterbelts or wildlife habitat).

DO NOT apply when winds exceed 16 km/h when using open boom sprayers. Do not apply when winds exceed 25 km/h when using hooded sprayers.

AERIAL APPLICATION

EXERCISE EXTREME CAUTION DURING THE AERIAL APPLICATION OF ANY INSECTICIDE, HERBICIDE OR FUNGICIDE. Drift of pesticides is not always visible with the human eye. Small droplets may drift into sensitive areas without obvious signs of danger. **FOLLOW THESE DIRECTIONS PRECISELY!**

When applying FBN Glufosinate 150 by aircraft, uniform spray coverage is essential. Applicators are required to use the correct combination of spray nozzle tips, nozzle placement and spray pressures, which will provide a COARSE droplet size distribution, with a volume mean diameter greater than 350 microns. **DO NOT USE RAINDROP NOZZLES.**

Apply FBN Glufosinate 150 in 33-55 litres of water per hectare. Where crop canopy is dense, or weed growth is heavy, better spray coverage will be achieved with higher spray volumes. Follow directions elsewhere on the label for the correct rate and timing of application.

Aerial drift is increased under certain meteorological conditions. Do not apply FBN Glufosinate 150 by aircraft when the wind speed is greater than 12 km/h.

For the protection of non-target habitats overspray or drift to sensitive habitats should be avoided. Accordingly, the following buffer zone is required. Leave a buffer zone of 30 metres between the edge of the last spray swath and the edge of sensitive habitats including emergent vegetation surrounding wetlands (sloughs, ponds, prairie potholes, lakes, rivers and streams) and adjacent areas consisting of short, long and mixed grass prairie. Do not contaminate these habitats when cleaning and rinsing spray equipment or containers. If a 30 metre buffer zone cannot be maintained by aerial application then apply by ground only. For ground application do not apply within 15 metres of the edge of crops or environmentally sensitive areas.

FBN Glufosinate 150 MAY BE USED AS A DESICCANT IN THE FOLLOWING CROPS:

- LENTILS
- POTATOES
- ALFALFA (**Grown for Seed**)

FBN Glufosinate 150 will also desiccate weeds present in the field at application (Wild Buckwheat may not be completely desiccated).

LENTILS

DO NOT APPLY TO LENTILS GROWN FOR SEED; THERE ARE NOT SUFFICIENT DATA TO SUPPORT SUCH USE.

Apply FBN Glufosinate 150 at 2-2.7 litres of product per hectare. Apply when the crop is in the 40- 60% pod turn (yellow to brown) stage. Use the higher rate when the crop canopy is dense and/or there are high populations of weeds present at application. DO NOT harvest treated crop within 9 days after application.

FBN Glufosinate 150 will provide assist in lentil plant drydown to facilitate straight combining, reducing the risks associated with adverse weather affecting the windrowed crop.

POTATOES

DO NOT APPLY TO POTATOES GROWN FOR SEED STOCK.

DO NOT HARVEST THE TREATED CROP WITHIN 9 DAYS AFTER APPLICATION.

Apply FBN Glufosinate 150 at 3 litres of product per hectare. Apply approximately 14-21 days prior to expected harvest. Desiccation of crops and weeds will be more rapid under warmer and drier conditions.

FBN Glufosinate 150 may be applied to promote uniform drydown of an unevenly maturing crop and will allow for planning of harvest timing. Desiccation of vines and weeds will facilitate mechanical harvesting.

ALFALFA (Grown for Seed)

Apply at 50-75% pod turn (brown) stage. Apply FBN Glufosinate 150 at 2.7 L/ha of product. Do not apply more than once per year.

PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN. Harmful or fatal if absorbed through the skin. Harmful if swallowed. This product may cause eye irritation. DO NOT get in eyes, on skin or on clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

- Wear protective clothing including a long sleeved shirt, long pants, goggles, chemical resistant gloves, and respirator when handling or spraying.
- Wear chemical resistant gloves for cleanup and repair.
- Workers should not enter treated fields within 24 hours of treatment. Workers who must enter fields within this time period should wear long-sleeved shirt, long pants and chemical resistant gloves.
- Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.** Keep in original container during storage. Do not contaminate water supply, ponds, lakes, streams and irrigation ditches by direct application, spray drift or when cleaning and rinsing spray equipment or containers.

CAUTION: Do not mix FBN Glufosinate 150 with pesticides, fertilizers or any other chemical additives unless recommended on this label.

ENVIRONMENTAL PRECAUTIONS:

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under **DIRECTIONS FOR USE.** Do not contaminate these systems through direct application, disposal of waste or cleaning equipment. Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.**

STORAGE

CANNOT be stored below freezing. If stored for one year or longer, shake well before using. Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs. Do not use or store in or around the home. Keep in original container during storage.

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION: Treat symptomatically. Medical personnel should contact CANUTEC collect at 1-613-996-6666 or *666, 24 hours a day.

DISPOSAL Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.

2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container Disposal: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Disposal of Unused, Unwanted Product: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Disposal of Unused Spray Solution: If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.

RESISTANCE MANAGEMENT

For resistance management, FBN Glufosinate 150 is a Group 10 herbicide. Any weed population may contain or develop plants naturally resistant to FBN Glufosinate 150 and other Group 10 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of FBN Glufosinate 150 or other Group 10 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance- management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FOR MORE INFORMATION CONTACT:

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M4
1-844-200-FARM (3276)

Contact number: 1-844-200-FARM (3276)

Transportation of Dangerous Goods Classification: PESTICIDES, LIQUID, TOXIC,
N.O.S. (GLUFOSINATE-AMMONIUM), CLASS 6.1, UN2902, P.G. III

2020-1097
2020-05-07

(Container)

FBN Clopyralid 360 SL Herbicide

GROUP	4	HERBICIDE
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For control of perennial and annual broadleaved weeds in field crops, Christmas tree plantations, pasture, rangeland, vegetable and fruit crops, and non-cropland.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: clopyralid 360 g/L (present as the monoethanolamine salt)

Liquid

REGISTRATION NO. 33762 PEST CONTROL PRODUCTS ACT



POISON

DANGER - EYE AND SKIN IRRITANT

NET CONTENTS: 1 – 1000 L

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

Product Information: 1-844-200-FARM (3276)

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

May be harmful if absorbed through the skin

MAY CAUSE SKIN IRRITATION

COMBUSTIBLE

Severely irritating to the eye. DO NOT get in eyes.

Avoid contact with skin and clothing.

Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, cleanup and repair. Goggles or a face shield are required during mixing and loading. Gloves are not required to be worn during groundboom applications but are required for mixing/loading, clean-up and repair.

For agricultural crops, do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. For non-crop areas, DO NOT enter or allow worker entry into treated areas until sprays have dried.

AT COMPLETION OF SPRAYING OR END OF THE DAY: Take a shower immediately. Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store this product away from food or feed. Store in heated storage; if product is frozen, bring to room temperature and agitate before use.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in any way that is inconsistent with the directions on the label.

(Booklet)

FBN Clopyralid 360 SL Herbicide

GROUP	4	HERBICIDE
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For control of perennial and annual broadleaved weeds in field crops, Christmas tree plantations, pasture, rangeland, vegetable and fruit crops, and non-cropland.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: clopyralid: 360 g/L (present as the monoethanolamine salt)

Liquid

REGISTRATION NO. 33762 PEST CONTROL PRODUCTS ACT



POISON

DANGER - EYE AND SKIN IRRITANT

NET CONTENTS: 1- 1000 L

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

Product Information: 1-844-200-FARM (3276)

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

May be harmful if absorbed through the skin

MAY CAUSE SKIN IRRITATION

COMBUSTIBLE

Severely irritating to the eye. DO NOT get in eyes.

Avoid contact with skin and clothing.

Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, cleanup and repair. Goggles or a face shield are required during mixing and loading. Gloves are not required to be worn during groundboom applications but are required for mixing/loading, clean-up and repair.

For agricultural crops, do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. For non-crop areas, DO NOT enter or allow worker entry into treated areas until sprays have dried.

AT COMPLETION OF SPRAYING OR END OF THE DAY: Take a shower immediately. Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (for example, soils that are compacted or fine textured such as clay).

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store this product away from food or feed. Store in heated storage; if product is frozen, bring to room temperature and agitate before use.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

FBN Clopyralid 360 SL Herbicide is a liquid concentrate intended for dilution with water and for use on canola, sugar beets, rutabagas, summerfallow, flax (including low linolenic acid varieties), wheat (spring), barley (spring), oats, strawberry, seedling and established grasses grown for forage and seed production, non- crop farmland, balsam fir Christmas trees and highbush blueberry. It is readily absorbed by both foliage and roots and translocates both upwards and downwards in plants. The product controls Canada thistle, wild buckwheat, scentless chamomile, common groundsel and volunteer alfalfa. It suppresses growth of perennial sow-thistle through control of top growth.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

VEGETATION AND CROP PRECAUTIONS

Do not use in greenhouses.

Sensitive Plants

Do not apply FBN Clopyralid 360 SL Herbicide directly to, or otherwise permit it to come into contact with sunflowers, legumes (such as peas, beans, lentils or alfalfa), fruit or vegetable crops, flowers or other desirable broadleaved plants. Take precautions to prevent spray mists containing it to drift onto them. Residues of FBN Clopyralid 360 SL Herbicide can remain in the soil following the year of use, thereby affecting growth of sensitive crops.

Special precautions should be taken during application to non cropland areas such as roadsides, pipelines and railways where sensitive desirable vegetation may be present. Do not apply to or allow drift to come into contact with sensitive desirable vegetation such as vetch or clover which may be found on embankments.

Non-Target Sites

Avoid contamination of non-target land, water or irrigation ditches. Do not use FBN Clopyralid 360 SL Herbicide in the following areas: standing or flowing water; the inner banks or bottoms of irrigation ditches; in areas where surface water can run off to adjacent croplands either planted or to be planted to sensitive crops.

Crop Rotation

Fields previously treated with FBN Clopyralid 360 SL Herbicide can be seeded the following year to wheat, oats, barley, rye (not underseeded with legumes, clover or alfalfa), forage grasses, flax, canola, mustard or it can be summerfallowed.

Do not seed to crops other than those listed above in the calendar year following treatment.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) for information before mixing any pesticide or fertilizer that is not specifically recommended on this label.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Grazing and Harvesting for Feed

There are no restrictions on the grazing of crops or forages treated with FBN Clopyralid 360 SL Herbicide. If necessary, treated areas may be grazed immediately following application.

Manure and Straw

Residues of the herbicide occurring in the straw may be harmful to susceptible plants; therefore, do not use straw or crop residue from treated crops for composting or mulching susceptible broadleaved crops. If the straw or crop residue is used for animal bedding or feed, return the manure to fields to be planted to clopyralid tolerant crops such as wheat, barley, oats, rye, forage grasses, canola or flax. Do not grow susceptible crops such as peas, beans, lentils, potatoes, sunflowers or other sensitive crops on land which has been mulched with straw containing FBN Clopyralid 360 SL Herbicide residues within the last 12 months.

SPRAY EQUIPMENT AND CONTAINER PRECAUTIONS

Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings. For ground sprayer applications:

Spot treatments using hand-held equipment do not require a buffer zone. Use of low-clearance hooded or shielded sprayers that prevent spray contact with crop, fruit or foliage.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) fine/medium/coarse classification. Boom height must be 60 cm or less above the crop or ground. DO NOT apply using aerial application equipment.

To Reduce Spray Drift

- Use nozzles that deliver higher volumes and coarser droplets.

- Use low pressures (200 to 275 kPa).
- Use 100 to 200 L/ha of spray solution.
- Spray when the wind velocity is 15 km/hr or less.

Equipment Clean-Up

Equipment used to apply FBN Clopyralid 360 SL Herbicide should not be used to apply other pesticides to sensitive crops without thorough cleaning. Contact your FBN Clopyralid 360 SL Herbicide dealer for a detailed equipment cleaning procedure.

APPLICATION DIRECTIONS

Spray Preparation

To prepare the spray solution add about half the desired amount of water to the spray tank, then with mechanical or bypass agitation, add the recommended amount of FBN Clopyralid 360 SL Herbicide. Mix thoroughly in the tank. Second, add the recommended tank-mix herbicide. Finally with continued agitation, add the rest of the water.

Spray Application Volume

Apply FBN Clopyralid 360 SL Herbicide at 0.28 to 0.83 L/ha plus any other herbicide approved as a tank-mix at the recommended rate in sufficient water to ensure thorough coverage (100 to 200 L/ha of spray solution) by ground equipment only at pressures of 200 to 275 kPa. Treat when weeds are young and actively growing, when the Canada thistle is in the rosette to pre-bud stage and before the purple bud stage and volunteer alfalfa is 5-50 cm in height.

For spot spraying of weed patches, mix the required volume of FBN Clopyralid 360 SL Herbicide in 200 L of water and apply to 1000 m² of weeds. Refer to the following table for the correct amount of FBN Clopyralid 360 SL Herbicide to use:

Recommended Rate of FBN Clopyralid 360 SL Herbicide Required Per Hectare	Volume of FBN Clopyralid 360 SL Herbicide Required To Treat 1000 m²
0.28 L	28 mL
0.42 L	42 mL
0.56 L	56 mL
0.83 L	83 mL

Approximate Conversions:

- 200 to 275 kPa = 30 to 40 PSI
- 100 to 200 L/ha = 10 to 20 gallons/acre
- 1 sq. metre = 1.2 sq. yards
- 1 L/ha = 14 fl. oz./acre

DIRECTIONS FOR USE – FBN Clopyralid 360 SL Herbicide Applied Alone CROPLAND AND NON-CROP

FARMLAND AREAS

Weeds Controlled	Rate*
Canada thistle (top growth) vetch (<i>Vicia</i> spp.) alsike clover	0.42 L/ha
Canada thistle scentless chamomile wild buckwheat perennial sow-thistle (top growth) common groundsel volunteer alfalfa common ragweed sheep sorrel (suppression) ox-eye daisy (suppression) kudzu (for short term suppression of top growth)	0.56 L/ha
Canada thistle (season-long control of top growth with a reduction in population in the following year) kudzu (for up to season long suppression of top growth)	0.83 L/ha

* Refer to individual crop sections below for appropriate use rate.

Weed Stages at Application

Applications of FBN Clopyralid 360 SL Herbicide should be made when Canada thistle, perennial sow-thistle and scentless chamomile are in the rosette to pre-bud stage of growth. Best results are obtained when Canada thistle is actively growing and soil moisture is adequate for rapid growth. Under dry soil conditions and poor growing conditions, control of Canada thistle may be severely reduced. Applications of FBN Clopyralid 360 SL Herbicide made after the Canada thistle flower has reached the purple bud stage will not provide satisfactory control.

Control of Canada Thistle

For in crop control of top growth of Canada thistle apply FBN Clopyralid 360 SL Herbicide at the rate of 0.42 L/ha. This will suppress top growth of Canada thistle for 6 to 8 weeks. Some regrowth may occur by the end of the season but this will not interfere with the harvesting of the crop.

For season long control of top growth of Canada thistle apply FBN Clopyralid 360 SL Herbicide at the rate of 0.56 L/ha. This rate will generally provide season long control of Canada thistle. Not all rhizomes will be killed and some regrowth may occur by the end of the growing season.

For season long control of top growth, with a reduction of Canada thistle population in the following year, apply FBN Clopyralid 360 SL Herbicide at the rate of 0.83 L/ha. This rate will provide season long control of Canada thistle and suppression into the following season, resulting in a reduction of the total number of Canada thistle shoots in the treated area.

Kudzu

In farmland non-crop areas, e.g., storage areas, farm buildings, fence rows, repeat annual applications in a minimum spray volume of 200 L/ha are required to suppress this vine due to regrowth from tubers and crowns and new growth from dormant seed in response to soil disturbance. Repeat annual applications in a minimum of 100 L water/ha may be required in cultivated fields, including summerfallow, where kudzu seed is known to be present. Application may be made by means of a backpack or hand held sprayer for small infestations.

CANOLA (Western Canada Only)

For use on Polish and Argentine varieties, including canola. FBN Clopyralid 360 SL Herbicide should be diluted with water and applied at the 2 to 6 leaf stage of the crop to effectively control Canada thistle, scentless chamomile, common groundsel, wild buckwheat, the top growth of perennial sow-thistle and volunteer alfalfa. For specific directions for control of Canada thistle only refer to the section: Control of Canada thistle.

Tank-mix Combinations in Canola

REFER TO THE PRODUCT LABELS OF THESE HERBICIDES FOR A LIST OF OTHER WEEDS CONTROLLED, RATES (IF NOT LISTED IN THE TABLE BELOW) AND TIMINGS OF APPLICATION, WATER VOLUMES AND USE PRECAUTIONS.

Herbicide Tank-Mix Partner	Rate FBN Clopyralid 360 SL	Rate Tank-Mix Partner	Additional Weeds Controlled
Poast Ultra	0.42 - 0.83 L/ha	0.32 - 0.47 L/ha plus Merge Adjuvant 0.75-1.0L/ha	annual grass weeds, Canada thistle
Venture L Herbicide	0.42 – 0.83 L/ha	0.6 - 2.0 L/ha	Venture L Herbicide
Select	0.42 - 0.83 L/ha	0.19 L/ha plus Amigo at 0.5% v/v	Canada thistle***, wild buckwheat****, wild oats, green foxtail, volunteer barley, volunteer wheat, and volunteer oats
Odyssey WDG*	0.42 - 0.56 L/ha	29 - 43 g/ha	Canada thistle (FBN Clopyralid 360 SL at 0.42 L/ha will provide top growth control of Canada thistle for 6-8 weeks, while the 0.56 L/ha rate will provide season long control of top growth)
VP480 Herbicide ** Roundup Transorb HC Liquid ** Roundup WeatherMAX With Transorb 2 Technology**	0.28 L/ha	0.94 L/ha 0.83 L/ha 0.83 L/ha	For rates and timing of application for annual grass and broadleaf weeds please see tank-mix partner label. Weeds controlled season long: Canada thistle (season-long top growth), dandelions <15 cm diameter (season-long top growth), dandelions >15 cm diameter (suppression), perennial sowthistle (season-long top growth), perennial sowthistle (season-long top growth), wild buck wheat

* Clearfield canola varieties only – apply to Clearfield canola when in the 2 to 6 leaf stage and Canada thistle is actively growing.

** Glyphosate-tolerant canola varieties only – apply to canola when in the 2 to 6 leaf stage. Use 100 L/ha water.

***Canada thistle – 0.42 L FBN Clopyralid 360 SL/ha top growth control to 6-8 weeks, 0.56 L FBN Clopyralid 360 SL/ha season- long control, 0.83 L FBN Clopyralid 360 SL/ha control into following year

****Wild buckwheat – 0.56 L FBN Clopyralid 360 SL/ha for season-long control

Tank-Mix Instructions

Note 1: When tank mixing water soluble formulations such as FBN Clopyralid 360 SL Herbicide with emulsifiable concentrates such as Poast Ultra, and Select herbicides, first add the FBN Clopyralid 360 SL Herbicide to the spray tank. Once it is half filled with water, add the emulsifiable concentrate as the remaining water is put into the spray tank.

Note 2: If the sprayer has been previously used to apply herbicides which contain 2,4-D or MCPA herbicides, it is imperative that the spray equipment be thoroughly cleaned before FBN Clopyralid 360 SL Herbicide is mixed in the spray tank. Trace contamination of the spray solution with these herbicides will result in damage to the canola.

Note 3: Use 100 L/Ha of water. Use a 50 mesh (or coarser) filter screen. Fill the spray tank three-quarters full with water. Add the required amount of Odyssey WDG herbicide soluble bag(s) directly into the sprayer through the tank opening. Agitate for at least ten minutes to dissolve the herbicide. After the herbicide is dissolved, use a separate calibrated measuring device to add the required amount of FBN Clopyralid 360 SL Herbicide while agitating the spray solution. After the FBN Clopyralid 360 SL Herbicide is dissolved, continue agitation and add the required amount of Merge adjuvant or non-ionic surfactant plus fertilizer. If excess foaming occurs, a silicone anti-foaming agent may be added (e.g. Halt). Complete filling the tank to the desired level with water. If agitation is stopped for more than 5 minutes, re-suspend spray solution by full agitation prior to commencing spraying again. Between loads of Odyssey WDG herbicide, check in-line and nozzle screens and rinse and clean if necessary. Upon completion of spraying Odyssey WDG herbicide, thoroughly flush tank, boom, hoses and in-line and nozzle screens with clean water to avoid possible injury to other crops.

FLAX, Including Low Linolenic Acid Varieties (Western Canada Only)

For use in flax, FBN Clopyralid 360 SL Herbicide should be applied when the flax is 5 to 10 cm high and the weeds are actively growing. Use FBN Clopyralid 360 SL Herbicide at 0.56 to 0.83 L/ha to control Canada thistle, common groundsel, scentless chamomile, wild buckwheat, perennial sow-thistle (top growth) and volunteer alfalfa.

The 0.83 L/ha rate will extend control of Canada thistle into the following year.

Tank-Mix Combinations in Flax

REFER TO THE PRODUCT LABELS OF THESE HERBICIDES FOR A LIST OF OTHER WEEDS CONTROLLED, RATES (IF NOT LISTED IN THE TABLE BELOW) AND TIMINGS OF APPLICATION, WATER VOLUMES AND USE PRECAUTIONS.

Herbicide Tank-Mix Partner	Rate FBN Clopyralid 360 SL	Rate Tank-Mix Partner	Additional Weeds Controlled
MCPA Ester or MCPA Amine MCPA Amine (500 g ae/L) MCPA Ester (500 g ae/L) MCPA Ester (600 g ae/L)	0.42 L/ha	420 - 560 g ae/ha 0.84 - 1.12 L/ha 0.7 - 0.93 L/ha	Canada thistle (top growth control) shepherd's-purse, common groundsel common ragweed, cocklebur, dandelion, stinkweed, lamb's-quarters tartary buckwheat, scentless chamomile, wild buckwheat, wild mustard, volunteer canola, redroot pigweed*, perennial sow-thistle (top growth), volunteer alfalfa
Poast Ultra	0.42 - 0.83 L/ha	0.32 - 0.47 L/ha plus Merge Adjuvant 0.75-1.0 L/ha	annual grass weeds, Canada thistle
Poast Ultra plus MCPA Ester	0.42 - 0.83 L/ha	0.32 - 0.47 L/ha plus Merge Adjuvant 0.75-1.0 L/ha plus 420 - 560 g ai/ha	broadleaved, annual grasses, and certain perennial broadleaved weeds
Select	0.56 - 0.83 L/ha	0.19 L/ha + Amigo Adjuvant at 0.5% v/v	Canada thistle, wild oats, green foxtail, volunteer barley, volunteer wheat, volunteer oats, and wild buckwheat
Select plus MCPA Ester	0.21 - 0.28 L/ha	0.19 L/ha plus Amigo Adjuvant at 0.5 v/v plus 420 - 560 g a.e./ha	Low rate: 0.21 L/ha FBN Clopyralid 360 SL + 420 g a.e./ha MCPA Ester – Canada thistle (low infestation), wild oats, green foxtail, volunteer cereals (wheat, barley, oats). High rate: 0.28 L/ha FBN Clopyralid 360 SL + 560 g a.e./ha MCPA Ester – Canada thistle (medium to high infestation), wild oats, green foxtail, red root pigweed, smartweed, sow-thistle (annual and perennial) (top growth), volunteer cereals (wheat, barley, oats), volunteer canola, and wild buckwheat

* Refer to MCPA herbicide label for rates and control rating.

**Canada thistle – 0.56 L FBN Clopyralid 360 SL/ha for season-long control, 0.83 L FBN Clopyralid 360 SL/ha control extended into following year.

Tank-Mix Instructions

Note 1: Rates of MCPA ester herbicide of 420 g active ingredient/ha or higher, or MCPA amine herbicide of 490 g active ingredient/ha or higher may cause some delay in maturity with resulting yield reduction.

Note 2: Where contact herbicides such as bromoxynil herbicide are used (which damage the leaves of the Canada thistle) FBN Clopyralid 360 SL Herbicide should be applied 7 to 14 days prior or after an interval of 14 days. This allows the Canada thistle to recover and resume growth.

Note 3: Add the correct amount of FBN Clopyralid 360 SL Herbicide to spray tank half filled with water and agitate. Add the correct amount of Poast Ultra herbicide and continue to agitate. Add the correct amount of Merge adjuvant along with the remaining amount of water necessary to fill the spray tank. Continue agitation.

Note 4: Add the correct amount of FBN Clopyralid 360 SL Herbicide, then MCPA herbicide to half filled sprayer and agitate for 2 to 3 minutes. Next, add Poast Ultra herbicide, and follow with the addition of Merge adjuvant with the remaining water to the required spray volume. Continuously agitate at all times.

OATS (Western Canada Only), WHEAT (SPRING) AND BARLEY (SPRING)

FBN Clopyralid 360 SL Herbicide may be used on wheat (spring), barley (spring) and oats to control Canada thistle, common groundsel, perennial sow-thistle (top growth control), wild buckwheat, scentless chamomile and volunteer alfalfa. FBN Clopyralid 360 SL Herbicide should be applied when the wheat, barley or oats are between the 3 leaf to flag leaf emergence stages of growth and weeds are actively growing. Since FBN Clopyralid 360 SL Herbicide damages legumes such as clover and alfalfa, these should not be undersown into the cereals. See Grazing and Harvesting for Feed Section of label for grazing/harvesting intervals for immature crops.

Rates of Use

FBN Clopyralid 360 SL Herbicide may be used alone in cereals for Canada thistle control.

Use 0.42 L/ha of FBN Clopyralid 360 SL Herbicide for the control of top growth of Canada thistle. This rate will suppress top growth of Canada thistle for 6 to 8 weeks. Some regrowth may occur by the end of the season but will not interfere with the harvesting of the crop.

Use 0.56 L/ha of FBN Clopyralid 360 SL Herbicide for season long control of Canada thistle.

Tank-Mix Combinations Oats (Western Canada Only), Spring Wheat and Barley

REFER TO THE PRODUCT LABELS OF THESE HERBICIDES FOR A LIST OF OTHER WEEDS CONTROLLED, RATES (IF NOT LISTED IN THE TABLE BELOW) AND TIMINGS OF APPLICATION, WATER VOLUMES AND USE PRECAUTIONS.

The following tank mixtures will control both annual and perennial broadleaved weeds listed on the tank-mix partner labels and in addition the weeds named in the Comments column below.

Herbicide Tank-Mix Partner	Crops Registered	FBN Clopyralid 360 SL	Tank-Mix Partner	Additional Weeds Controlled
2,4-D Ester or 2,4-D Amine	spring wheat durum wheat spring barley	0.28 - 0.42 L/ha	420 - 560 g a.e./ha	Canada thistle (FBN Clopyralid 360 SL at 0.28 L/ha will control Canada thistle for 6 to 8 weeks and at 0.42 L/ha rate will provide season long control) DO NOT USE ON OATS
2,4-D Amine (470 g ae/L)			0.9 - 1.2 L/ha	
2,4-D Amine (564 g ae/L) 2,4-D Ester (564 g a.e./L)			0.75 - 1.0 L/ha	
2,4-D Ester (660 g ae/L)			0.64 – 0.85 L/ha	

MCPA Ester or MCPA Amine MCPA Amine (500 g ae/L) MCPA Ester (500 g ae/L) MCPA Ester (600 g ae/L)	spring wheat durum wheat spring barley oats	0.28 - 0.42 L/ha	420 - 560 g ae/ha 0.84 - 1.12 L/ha 0.7 – 0.93 L/ha	Canada thistle (FBN Clopyralid 360 SL at 0.28 L/ha will control Canada thistle for 6 to 8 weeks and at 0.42 L/ha rate will provide season long control)
MCPA Ester plus Achieve Liquid	spring wheat durum wheat spring barley	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 0.5 L/ha plus Turbocharge 0.5% v/v	green foxtail, yellow foxtail, barnyard grass, Persian dandel, wild oats DO NOT USE ON OATS
MCPA Ester plus Assert 300 SC	spring wheat durum wheat spring barley	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 1.3 - 1.6 L/ha	wild oats: use 1.3 L/ha of Assert 300 SC on 1-3 leaf wild oats and 1.6 L/ha of Assert 300 SC on 4 leaf wild oats. DO NOT USE ON OATS
MCPA Ester plus Axial 100 EC	spring wheat spring barley	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 600 mL/ha plus Adigor 700 mL/ha	wild oats, green foxtail, yellow foxtail, volunteer oats, volunteer canary seed, proso millet DO NOT USE ON OATS
MCPA Ester plus Everest Solupak 70DF	spring wheat	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 43 g/ha	green foxtail, wild oats DO NOT USE ON OATS
MCPA Ester plus Horizon 240 EC	spring wheat durum wheat	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 230 - 290 mL/ha + Score Adjuvant 0.8 - 1.0% v/v	wild oats, green & yellow foxtail, volunteer (tame) oats, barnyard grass, volunteer canary seed at 230 mL/ha Horizon 240 EC plus 0.8% v/v Score Adjuvant above weeds plus Persian dandel at 290 mL/ha Horizon 240 EC plus 1.0% v/v Score Adjuvant DO NOT USE ON OATS
MCPA Ester plus Puma 120 Super	spring wheat durum wheat spring barley	0.21 - 0.28 L/ha	420 - 560 g ae/ha plus 385 - 770 mL/ha	green foxtail at 385 mL/ha of Puma 120 Super green foxtail, wild oats, barnyard grass at 770 mL/ha of Puma 120 Super DO NOT USE ON OATS

Florasulam SC plus MCPA Ester	spring wheat durum wheat spring barley oats	0.21 L/ha	0.1 L/ha plus 420 g ae/ha	Canada thistle, volunteer canola*, common chickweed, cleavers, dandelions (seedlings; over-wintered rosettes <15 cm), flixweed (spring rosettes only), hempnettle, lamb's quarters, pigweed, redroot, shepherd's purse, smartweed, perennial sowthistle (top growth only)**, annual sowthistle, stinkweed, stork's-bill, wild buckwheat, and wild mustard, and suppression of dandelion (over-wintered rosettes >15 cm; mature plants) * Including Roundup Ready, Liberty-Link and Smart herbicide-tolerant canola varieties ** Control not observed until a minimum of 40 days after treatment
Florasulam SC plus MCPA Ester plus Assert 300 SC	spring wheat durum wheat spring barley	0.21 L/ha	0.1 L/ha plus 420 g ae/ha +/- 1.6 L/ha	wild oats Use 1.3 L/ha of Assert 300 SC on 1-3 leaf wild oats and 1.6 L/ha of Assert 300 SC on 4 leaf wild oats DO NOT USE ON OATS
Florasulam SC plus MCPA Ester plus Everest Solupak 70DF	spring wheat durum wheat	0.21 L/ha	0.1 L/ha plus 420 g ae/ha plus 43 g/ha plus Agral 90 or AgSurf 0.25% v/v	green foxtail, wild oats DO NOT USE ON OATS
Florasulam SC plus MCPA Ester plus Axial 100 EC	spring wheat spring barley	0.21 L/ha	0.1 L/ha plus 420 g ae/ha plus 600 mL/ha plus Adigor 700 mL/ha	wild oats, green foxtail*, yellow foxtail, volunteer oats, volunteer canary seed, proso millet, and barnyard grass** * Suppression only of green foxtail. ** A reduction in barnyard grass control may be observed with this tank-mix combination. DO NOT USE ON OATS

<p>Starane™ II plus MCPA Ester</p>	<p>spring wheat durum wheat spring barley</p>	<p>0.21 L/ha or 0.28 L/ha</p>	<p>0.31 L/ha plus 420 g ae/ha 0.41 L/ha plus 560 g ae/ha</p>	<p>Low rate: cleavers (1-4 whorls), Canada thistle (low infestations), volunteer flax (1-12 cm), flixweed (spring seedling 2-4 lf), kochia ♦♦♦, lamb's-quarters, wild mustard, shepherd's purse, stinkweed, volunteer sunflower and suppression of stork's-bill (1-8 leaf)</p> <p>High rate: cleavers (1-4 whorls), flixweed♦♦, kochia♦♦♦, lamb's quarters, shepherd's-purse, stinkweed, stork's bill (1-8 leaf), sunflower (volunteer),volunteer flax (1-12 cm), wild mustard, tartary, buckwheat, wild buckwheat (1-4 leaf), Canada thistle ♦ (medium to high infestations), volunteer canola, dandelion ♦♦ common groundsel, round-leaved mallow (1-6 leaf), red-root pigweed, Russian pigweed, scentless chamomile, smartweed, annual sowthistle, perennial sowthistle♦, and suppression of common chickweed ♦♦♦, hemp-nettle (2-6 leaf stage)</p> <p>♦ Season long control, with some regrowth in the fall (top growth control). ♦♦ spring rosettes only. ♦♦♦ Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme. DO NOT USE ON OATS</p>
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<p>Starane II plus MCPA Ester plus Achieve Liquid</p>	<p>spring wheat durum wheat spring barley</p>	<p>0.21 L/ha or 0.28 L/ha</p>	<p>0.31 L/ha plus 420 g ae/ha plus 0.5 L/ha or 0.41 L/ha plus 560 g ae/ha plus 0.5 L/ha plus Turbocharge 0.5% v/v</p>	<p>plus green foxtail, wild oats DO NOT USE ON OATS</p>
<p>Starane II plus MCPA Ester plus Assert 300 SC</p>	<p>spring wheat durum wheat spring barley</p>	<p>0.21 L/ha or 0.28 L/ha</p>	<p>0.31 L/ha plus 420 g ae/ha plus 1.3 - 1.6 L/ha or 0.41 L/ha plus 560 g a.e./ha plus 1.3 - 1.6 L/ha</p>	<p>wild oats Use 1.3 L/ha of Assert 300 SC on 3-4 leaf wild oats and 1.6 L/ha of Assert 300 SC on 4 leaf wild oats DO NOT USE ON OATS</p>
<p>Starane II plus MCPA Ester plus Everest Solupak 70DF</p>	<p>spring wheat durum wheat</p>	<p>0.21 L/ha or 0.28 L/ha</p>	<p>0.31 L/ha plus 420 g ae/ha plus 43 g/ha or 0.41 L/ha plus 560 g ae/ha plus 43 g/ha</p>	<p>green foxtail, wild oats DO NOT USE ON OATS</p>

Starane II plus MCPA Ester plus Horizon 240 EC	spring wheat durum wheat	0.21 L/ha or 0.28 L/ha	0.31 L/ha plus 420 g ae/ha plus 230 mL/ha + Score Adjuvant 0.8% v/v or 0.41 L/ha plus 560 g ae/ha plus 230 mL/ha + Score Adjuvant 0.8% v/v	green foxtail, wild oats DO NOT USE ON OATS
Starane II plus MCPA Ester plus Puma 120 Super	spring wheat durum wheat spring barley	0.21 L/ha or 0.28 L/ha	0.31 L/ha plus 420 g ae/ha plus 385 - 770 mL/ha or 0.41 L/ha plus 560 g ae/ha plus 385 - 770 mL/ha	green foxtail at 385 mL/ha of Puma 120 Super green foxtail, wild oats, and barnyard grass at 770 mL/ha of Puma 120 Super DO NOT USE ON OATS
Refine Extra plus 2,4-D Ester or MCPA Ester	spring wheat spring barley (Western Canada only)	0.21 L/ha	20 g/ha + Agral 90 Adjuvant 0.2% v/v plus 420 g ae/ha	perennial sow thistle, wild buckwheat, volunteer canola, wild mustard, lady's thumb and stinkweed, while providing seasonal control of Canada thistle and suppression of cleavers DO NOT USE ON OATS

Tank-Mix Instructions

Note 1: If a tank-mix partner requires the addition of an adjuvant add the recommended adjuvant and dilution rate to the tank-mix.

Note 2: When tank mixing with Refine Extra, mix Refine Extra herbicide first in fresh water, then add the required amount of FBN Clopyralid 360 SL Herbicide followed by MCPA or 2,4-D herbicides. Add the surfactant last.

SUMMERFALLOW AND NON-CROP FARMLAND

FBN Clopyralid 360 SL Herbicide may be used on summerfallow (one application per year) and non-crop farmland (around farm buildings, storage areas, fence rows, etc.) at 0.83 L/ha for the control of Canada thistle, scentless chamomile, common groundsel, wild buckwheat, the top growth of perennial sow-thistle and volunteer alfalfa. The Canada thistle plants should be between the rosette and the early bud stage and actively growing at the time of spraying.

SEEDLING AND ESTABLISHED GRASSES FOR SEED PRODUCTION AND FORAGE (WESTERN CANADA ONLY)

Including Kentucky bluegrass, smooth brome grass, reed canary grass, creeping red fescue, meadow fescue, tall fescue, meadow foxtail, orchard grass, altai wild ryegrass, Russian wild ryegrass, timothy, crested wheatgrass, intermediate wheatgrass, slender wheatgrass and streambank wheatgrass for forage and seed production and tall wheatgrass for forage only: For control of the weeds listed on the label plus alsike clover, apply FBN Clopyralid 360 SL Herbicide at the rate of 0.42 to 0.83 L/ha in 110 to 220 L/ha of water.

Make one application per season by ground sprayer. For seedling grasses, apply at the 2 to 4 leaf stage. For established grasses, apply at the shot-blade stage, or in the fall after harvest or in early spring. See Grazing and Harvesting for Feed Section.

BALSAM FIR CHRISTMAS TREE PLANTATIONS

For the control of vetch (*Vicia* spp.) apply FBN Clopyralid 360 SL Herbicide at 0.42 L/ha in 150 to 200 L/ha of water as a directed foliar application using a hydraulic sprayer. Best control is obtained when vetch stems are 10 to 15 cm long and prior to the vetch climbing into a tree crown. Avoid contact with the upper two thirds of the tree crown. Do not use on seedbeds, transplants or any over-the-top applications.

SUGAR BEETS

For Canada thistle control apply FBN Clopyralid 360 SL Herbicide at 0.56 to 0.83 L/ha with ground equipment as a foliar spray either broadcast or in a band over the row. When applied in the band, the amount of FBN Clopyralid 360 SL Herbicide should be reduced proportional to the band width. FBN Clopyralid 360 SL Herbicide should be applied when sugarbeets are in the cotyledon to 8 leaf stage. For the most effective control of Canada thistle, apply FBN Clopyralid 360 SL Herbicide as a broadcast treatment to the entire infested area. Do not apply within 90 days of harvest.

RUTABAGA

For control of common ragweed, apply FBN Clopyralid 360 SL Herbicide with a boom sprayer at the rate of 0.56 L/ha in approximately 200 to 300 L/ha of water. Apply as a postemergent spray when ragweed plants are 5 to 10 cm tall. Application to larger ragweed plants will result in reduced weed control. Make only one application per season. Preharvest interval is 83 days.

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE

HIGHBUSH BLUEBERRY: Make one application per year, post emergent for the control of vetch and red and white clover. Apply as a directed spray treatment (ground equipment) targeting weeds and away from the plants (avoid contact with foliage or woody portions to reduce the risk of crop injury) or as a spot treatment under the canopy of highbush blueberry plants. Plants are more sensitive to FBN Clopyralid 360 SL applied in the spring prior to bloom, before and/or during the crop's annual flush of growth, than after bloom. Do not apply FBN Clopyralid 360 SL from one week prior to bloom until one week after bloom. Apply at a rate of 0.42 L/ha for vetch and 0.83 L/ha for red and white clover. The Pre-harvest interval is 45 days.

CANOLA - ONTARIO ONLY: To be used on Canola in Ontario on the following NATIONALLY REGISTERED in Canada spring canola cultivars: Cyclone, Ebony, Jewel, 46A65 and Hyola 401.

Weeds Controlled	Rate	4.45 L Bottle Will Treat	For Optimum Results
Canada thistle, scentless chamomile, wild buckwheat, perennial sow-thistle (top growth), common groundsel	0.42 L/ha to 0.56 L/ha	10.6 ha to 7.9 ha	1. Treat when weeds are actively growing. 2. Use 100 to 200 L/ha spray solution for uniform coverage

Make one application per season; post emergent. Apply at the 2-6 leaf stage of canola, when weeds are actively growing. Apply to Canada thistle at the rosette to pre-bud stage.

BEARING AND NON-BEARING APPLES: To be used as a spot treatment on bearing and non-bearing apples for control of perennial vetch species. When using a hand gun or backpack sprayer to treat small infestations, apply FBN Clopyralid 360 SL Herbicide at a rate of 56 ml per 1000 square metre area in 200 L of water when vetch species are in the early flowering stage. When applying with a boom sprayer to treat larger infestations, apply 560 ml of FBN Clopyralid 360 SL Herbicide per hectare in 150-200 L water. Avoid contact of the spray with the tree limbs. For best results apply in early spring. Allow at least 30 days between weed treatment application and harvest.

CABBAGE, CAULIFLOWER, BROCCOLI AND KOHLRABI (ALL TRANSPLANTED), NAPPA CABBAGE (TRANSPLANTED AND SEEDED), CHINESE RADISH, MUSTARD CABBAGE AND CHINESE BROCCOLI (ALL SEEDED). Make one application per year to control ragweed, vetch, common groundsel, Canada thistle and for suppression of sheep sorrel. Apply post planting as a ground application only.

Application rate: Apply at a rate of 0.56 L/ha in 300 L water/ha. The pre-harvest interval (PHI) is 30 days.

CRANBERRY: Make one-two applications per year, for the control of vetch. Apply with wiper-type application equipment.

Wipe treatments may be applied as a spot application. The treatment may be applied using equipment such as a hockey stick applicator. **The treatment solution should be wiped onto weed foliage which extends above the cranberry canopy.** Wiper applications may be made in the fall at least 2 weeks after harvest and after the vines have attained their winter dormancy colour, and in the spring prior to bud-break. Wiper application treatments may also be applied following cranberry bud-break (first emergence (1 to 2 mm) of terminal meristem) to control late emerging weeds or weeds which escaped earlier control measures. **Contact of the treatment solution with cranberry foliage after bud break should be avoided since it will result in plant injury.**

Application rate: Apply a 2% solution of FBN Clopyralid 360 SL Herbicide in water (20 mL product/L water). The preharvest interval is 60 days.

TURNIP

For control of labeled weeds, apply FBN Clopyralid 360 SL Herbicide with a boom sprayer at the rate of 0.42 -0.56 L/ha in approximately 200 to 300 L/ha of water. Apply as a postemergent spray when weeds are young and actively growing. Make only one application per season. Preharvest interval for turnip roots is 30 days, for turnip greens is 15 days.

WEED CONTROL IN SHELTERBELTS: For control of Canada thistle in shelterbelts of villosa lilac, acute willow, Colorado spruce, white spruce, buffaloberry and chokecherry. Make one application per year. Apply to Canada thistle at the rosette to pre-bud stage, post emergent, ground application only.

Application rate: Apply at a rate of 0.83 L/ha.

STRAWBERRY (Renovation)

For control of tufted vetch and Canada thistle and suppression of sheep sorrel and ox-eye daisy, apply FBN Clopyralid 360 SL Herbicide at the rate of 0.56 to 0.83 L/ha. Apply as a broadcast application with a boom sprayer calibrated to deliver a total volume of 150 to 200 L/ha. For Canada thistle control, refer to the Control of Canada Thistle section for rate selection. For control of tufted vetch apply at the 0.56 L/ha rate. For sheep sorrel and ox-eye daisy, apply at the 0.83 L/ha rate. Apply as the single treatment immediately after harvest but before mowing. Wait at least 7 to 10 days after FBN Clopyralid 360 SL Herbicide application before mowing. Do not apply FBN Clopyralid 360 SL Herbicide after mid-August because of its possible effects on runner development and flower bud formation. Later applications of FBN Clopyralid 360 SL Herbicide may cause crop damage resulting in reduced yields in the season following treatment.

Apply FBN Clopyralid 360 SL Herbicide only as a summer renovation treatment.

Do not apply FBN Clopyralid 360 SL Herbicide more than once per year.

Early strawberry varieties such as Annapolis or Veestar may be more susceptible to injury. Certain environmental stresses such as drought, flooding or severe overwintering conditions may increase the risk of injury from FBN Clopyralid 360 SL Herbicide.

CONTROL OF TUFTED VETCH IN LOWBUSH BLUEBERRY IN EASTERN CANADA ONLY

Apply FBN Clopyralid 360 SL Herbicide to control tufted vetch in lowbush blueberry. **FOR SPOT APPLICATION ONLY.** When using a hand gun or backpack sprayer to treat small infestations, apply FBN Clopyralid 360 SL Herbicide at a rate of 42 ml per 1000 square metre area in 200 L of water. When applying with a boom sprayer to treat larger infestations, apply 420 ml of FBN Clopyralid 360 SL Herbicide per hectare in 150-200 L water. Make one application per year, in the non-bearing year (prune year). Apply in June OR when tufted vetch is in early bloom. Applications of FBN Clopyralid 360 SL Herbicide may cause crop damage resulting in reduced yields in the season following application. The Pre-harvest interval is 10 months.

CONTROL OF CANADA THISTLE AND OTHER LABELLED WEEDS IN POPLAR SPECIES AND THEIR HYBRIDS

Apply FBN Clopyralid 360 SL Herbicide at a rate of 0.83 L/ha to control Canada thistle and other labelled weeds in new and established short rotation intensive culture crops of poplar (*Populus*) species and their hybrids. Make one application per year. Apply to Canada thistle in the rosette to pre-bud stage. Apply by ground application only using an overall spray or as a directed spray to the base of the tree. Some leaf cupping and stem twisting may occur, but will not adversely affect growth.

WARNING: Poplar clones/hybrids vary in their tolerance to FBN Clopyralid 360 SL Herbicide. Injury observed includes leaf injury, leaf cupping, stem twisting, height reduction and diameter reduction. As not all clones/hybrids have been tested for tolerance to FBN Clopyralid 360 SL Herbicide, use of this product should be limited to a small area of each clone/hybrid to confirm tolerance prior to adoption as a general field practice.

POST EMERGENCE WEED CONTROL IN CONIFERS FOR FIELD PRODUCTION

For the control of labeled weeds in established conifer plantations including Balsam fir, Fraser fir, White spruce, and White pine, apply FBN Clopyralid 360 SL Herbicide at 0.42 to 0.56 litres of product in 150 to 300 litres of water per hectare as a directed spray. Apply as banded sprays on either side of the trees contacting the bottom foliage only. Avoid contact with the upper two thirds of the tree crown. Do not use on seedbeds, transplants, or any over the top applications. Make one application per season.

FBN Clopyralid 360 SL has been tested on Balsam Fir, Fraser Fir, White pine and White spruce. FBN Clopyralid 360 SL may be applied to other non-listed conifer species, however, non-listed conifer species may vary in tolerance to FBN Clopyralid 360 SL. The first use of FBN Clopyralid 360 SL applied to any non-listed conifer species should be limited to a small area to confirm tolerance of each species prior to adoption as a general field practice.

CONTROL OF BROADLEAF WEEDS INCLUDING VETCH ON STONE FRUIT CROP GROUP 12-09

For the control of broadleaf weeds including vetch, apply FBN Clopyralid 360 SL Herbicide at the rate of 0.42 to 0.83 litres of product per hectare in 150 to 300 litres of water per hectare. When using a hand gun or backpack sprayer to treat small infestations, apply FBN Clopyralid 360 SL Herbicide at a rate of 42 to 83 mL per 1000 square meter area in 300 L of water when vetch species are in the early flowering stage. Apply up to the early flowering stage as a spot treatment. Use the higher rate for heavy infestation or when greater residual control is required. Avoid contact of the spray with the tree limbs. For best results apply in the early spring. Do not apply within 30 days of harvest.

REFER TO THE MAIN FBN CLOPYRALID 360 SL HERBICIDE LABEL FOR ADDITIONAL DETAILS AND INSTRUCTIONS, INCLUDING ROTATIONAL CROPPING RESTRICTIONS, BEFORE USING THIS PRODUCT

TRANSLINE™ IVM SYSTEM (NON-CROP USES)

**FOR USE IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA
(INCLUDING THE PEACE RIVER REGION), CENTRAL AND ATLANTIC REGIONS OF CANADA ONLY.**

FBN Clopyralid 360 SL Herbicide may be used on the following non-crop areas: rights-of-way (hydro, railroad, communication lines, pipelines) and associated stations, industrial manufacturing sites, storage sites, vacant lots and roadsides, military bases and low maintenance rough turf areas*. This product is not registered for use on fine turf lawns or turf grass receiving high maintenance. Apply between 0.42 to 0.83 L/ha depending on weeds present and level of Canada thistle control required. Refer to the Weeds Controlled table for appropriate application rate.

*Low-maintenance turf that may contain a diverse mix of hardy, drought-tolerant, slow-growing and low-height turf grasses, fescues, various other taller grasses and wear-tolerant broadleaf species such as clover. Low maintenance turf areas also include those that have little or no fertilizer applications, no irrigation and only receive occasional mowing/cutting. Does not include high maintenance fine turf and turf grass.

TANK-MIX COMBINATIONS

FBN Clopyralid 360 SL Herbicide may be tank mixed with 2,4-D Amine or Ester or MCPA Amine or Ester for control of additional broadleaf weeds on roadsides and vacant lots. FBN Clopyralid 360 SL Herbicide may also be tank mixed with 2,4-D Amine for additional broadleaf use control on rights-of-way (hydro, railroad, communication lines, pipelines) and associated stations, industrial manufacturing sites and storage sites. Read and follow the label of each tank-mix product used for precautionary statements, directions for use, weeds controlled and any other restrictions. When tank mixing adhere to the most restrictive label limitations and precautions.

FBN Clopyralid 360 SL Herbicide at 0.42 to 0.83 L/ha may be tank mixed with 2,4-D or MCPA Herbicides at the rate of 420 to 560 g active ingredient/ha. The tank-mix will control many weeds, including: Canada thistle, cocklebur, common ragweed, dandelion, lamb's-quarters, scentless chamomile, perennial sow-thistle, shepherd's-purse, stinkweed, tartary buckwheat, wild buckwheat and wild mustard. Apply up to the 15 cm height of annual broadleaf weeds.

RANGELAND AND GRASS PASTURE

Including Kentucky bluegrass, smooth brome grass, reed canary grass, creeping red fescue, meadow fescue, tall fescue, meadow foxtail, orchard grass, altai wild ryegrass, Russian wild ryegrass, timothy, crested wheatgrass, intermediate wheatgrass, slender wheatgrass, streambank wheatgrass and tall wheatgrass.

For control of the weeds on the label plus alsike clover, apply FBN Clopyralid 360 SL Herbicide at the rate of 0.42 to 0.83 L/ha in 110 to 120 L/ha of water. Make one application per season by ground sprayer. For seedling grasses, apply at the 2 to 4 leaf stage. For established grasses, apply at the shot-blade stage or in the fall after harvest or early spring. Do not apply tank mixtures containing 2,4-D or MCPA.

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE

FOR USE IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA (INCLUDING THE PEACE RIVER REGION), CENTRAL AND ATLANTIC REGIONS OF CANADA ONLY.

CONTROL OF SPOTTED AND DIFFUSE KNAPWEED IN NON-CROPS AREAS (rights-of-way [hydro, railroad, communication lines, pipelines] and associated stations, industrial manufacturing sites, storage sites, roadsides, airports, military bases and low maintenance rough turf areas*) AND IN RANGELAND, PASTURE AND BALSAM FIR CHRISTMAS TREE STANDS OR PLANTATIONS.

*Low-maintenance turf that may contain a diverse mix of hardy, drought-tolerant, slow-growing and low-height turf grasses, fescues, various other taller grasses and wear-tolerant broadleaf species such as clover. Low maintenance turf areas also include those that have little or no fertilizer applications, no irrigation and only receive occasional mowing/cutting. Does not include high maintenance fine turf and turf grass.

Weeds Controlled

Spotted and Diffuse Knapweed

Application Rate

.70 L/ha

Make one application per year for the control of spotted and diffuse knapweed. Apply in the spring prior to the bud stage of the weeds. Apply in 100 - 200 L water/ha. Apply to both seedling or established plants.

DIRECTIONS FOR USE

FOR USE IN EASTERN CANADA ONLY

POST EMERGENCE WEED CONTROL IN DURUM WHEAT

For the control of labelled weeds, apply FBN Clopyralid 360 SL Herbicide at 0.42 to 0.56 L of product per hectare in 100 to 200 litres of water per hectare. Apply once during the three leaf to flag leaf stage contacting the foliage only. Pre-harvest interval is 60 days.

For the control of giant ragweed, from emergence to the five leaf stage, apply FBN Clopyralid 360 SL Herbicide at a rate of 0.56 litres of product per hectare in 100 to 200 litres of water per hectare. Pre-harvest interval is 60 days.

REFER TO THE MAIN FBN CLOPYRALID 360 SL HERBICIDE LABEL FOR ADDITIONAL DETAILS AND INSTRUCTIONS, INCLUDING ROTATIONAL CROPPING RESTRICTIONS, BEFORE USING THIS PRODUCT.

BUFFER ZONES

Spot treatments using hand-held equipment do not require a buffer zone.

For applications to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, woodlots, hedgerows, riparian areas and shrublands).

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitat
Field sprayer	wheat, barley, oats, flax, canola, forage grasses, high-bush blueberry, low-bush blueberry, strawberry, sugar beet, rutabaga, turnip, spinach, cabbage, broccoli, cauliflower, balsam fir, Christmas tree plantations, shelterbelts, poplar and their hybrids, non-crop uses, rangeland and grass pasture, Brussel sprouts	2*
	Crop group 11-09 (Pome fruit) and 12-09 (Stone fruit)	3

*Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way, including railroad ballast, rail and hydro rights-of-way, utility easements, roads and training grounds and firing ranges on military bases.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the label for those tank-mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, FBN Clopyralid 360 SL Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to FBN Clopyralid 360 SL Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of FBN Clopyralid 360 SL Herbicide or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in any way that is inconsistent with the directions on the label.

All other products are registered trademarks of their respective companies.

Farmer's Business Network Canada Inc.

PO Box 5607
High River, Alberta
Canada T1V 1M7

Material Safety Data Sheet - SDS

This information is based upon technical information believed to be reliable.
It is subject to revision as additional knowledge and experience is gained.

Smoke 540g/L SL (present as its potassium salt)

1. Chemical Product / Company Identification

Recommended use: Herbicide

Company Identification: Farmer's Business Network Canada Inc.

Address: Box 5607

Tel: 1-844-200-FARM (3276)

Emergency Call: In case of spills, poisoning or fire, telephone emergency response number CANUTEC

1-613-996-6666 or *666 on a cellular phone. (24 hours a day).

Product type: Glyphosate is an amino acid. It is presented here as the potassium salt, in water solution.

Other Identifier: PCP# 33697

2. Composition/Information on Ingredients

Components

Material CAS Number g/L Glyphosate 1071-83-6 540 * Equivalent to
Glyphosate Potassium Salt 70901-12-1 48.7% Inert Ingredients 51.3%
Components are not hazardous

3. Hazard identification

Emergency Overview: Warning! Cause irritation in eye. Harmful if swallowed or inhaled. **Potential Health Effects**

Ingestion:

Short Term Exposure: Significant oral exposure is considered to be unlikely. However, this product is an oral irritant. Symptoms may include burning sensation and reddening of skin in mouth and throat. Other symptoms may also become evident, but all should disappear once exposure has ceased.

Long Term Exposure: No data for health effects associated with long term ingestion. **Inhalation:**

Short Term Exposure: Available data indicates that this product is not harmful. However

product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

Long Term Exposure: No data for health effects associated with long term inhalation. **Skin Contact:**

Short Term Exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. However product is a skin irritant. Symptoms may include itchiness and reddening of contacted skin. Other symptoms may also become evident, but all should disappear once exposure has ceased.

Long Term Exposure: No data for health effects associated with long term skin exposure. **Eye Contact:**

Short Term Exposure: This product may be irritating to eyes, but is unlikely to cause anything more than mild transient discomfort.

Long Term Exposure: No data for health effects associated with long term eye exposure.

4. First Aid Measures

General Information:

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. Have this MSDS with you when you call.

Ingestion: If swallowed, do NOT induce vomiting. Wash mouth with water and contact a Poisons Information Centre, or call a doctor.

Inhalation: Move person to fresh air. If person is not breathing, call an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Skin Contact: Wash gently and thoroughly with warm water (use non-abrasive soap if necessary) for 10-20 minutes or until product is removed. Under running water, remove contaminated clothing, shoes and leather goods (e.g. watchbands and belts) and completely decontaminate them before reuse or discard. If irritation persists, repeat flushing and seek medical attention.

Eye Contact: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

5. Fire Fighting Measures

Fire and Explosion Hazards: There is no risk of an explosion from this product under normal circumstances if it is involved in a fire.

Only small quantities of decomposition products are expected from this product at temperatures normally achieved in a fire. This will only occur after heating to dryness. Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: Not Combustible. Use extinguishing media suited to burning materials.

Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade. Cool closed, undamaged containers exposed to fire with water spray.

Flash point: Does not burn.

Upper Flammability Limit: Does not burn.

Lower Flammability Limit: Does not burn.

Autoignition temperature: Not applicable - does not burn.

Flammability Class: Does not burn.

6. Accidental Release Measures

In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective clothing including eye/face protection. All skin areas should be covered. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. Usually, no respirator is necessary when using this product. Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material.

If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions.

After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused material may be found on the label.

If there is any conflict between this MSDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

7. Handling and Storage

Avoid contamination of seed, feed, and foodstuffs.

Soak up small amounts of spill with absorbent clays.

General information: Avoid contact with eye, skin and clothing, avoid breathing vapor or spray mist. Use with adequate ventilation. Keep container closed. Wash thoroughly after handling. Avoid contamination of seed, feed or foodstuffs.

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this MSDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the

product in the workplace. Also, avoid contact or contamination of product with

Material Safety Data Sheet of Glyphosate 540g/L SL (present as its potassium salt) Page 3 of 7
incompatible materials listed in Section 10.

Storage: Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label.

8. Exposure Controls/Personal Protection

Pesticide applicators and workers

These workers must refer to the product label and directions for use attached to the product for agricultural use requirements.

Manufacturing, commercial blending, and packaging workers:

Ventilation: No special precautions are recommended.

Respiratory protection: Respiratory protection should not be required for normal use and handling. During periods of abnormal exposure to heavy spray or mist, use NIOSH/MSHA approved equipment for pesticide vapor/mist is recommended. The respirator use limitations specified by NIOSH/MSHA or the manufacturer must be observed.

Eye protection: wear chemical safety goggles during mixing/pouring operations or other activities in which eye contact with undiluted material is likely to occur. Exposure control/personal protection continued:

Protective clothing: in cases in which prolonged or repeated skin contact with this material may occur, long-sleeved shirt, long pants, and chemical protective (e.g. rubber) gloves are recommended. Wash hands and contaminated skin after handling. Clothing soaked with a solution of this material should be promptly removed and laundered before use.

Airborne exposure limits: See section 2

9. Physical and Chemical Properties

Physical Description & colour: Slightly viscous liquid, Amber to Brown
Odour: Mild odour.

Flash point: Does not flash.

Water Solubility: Completely soluble in water.

pH: 4.0-8.5.

Density Value: 1.36~1.38g/cm³

Reference temperature: 20°C

Volatiles: Water component.

Volatility: No data.

Boiling Point: No data.

Freezing/Melting Point: Below 0°C.

Autoignition temp: Not applicable - does not burn.

Material Safety Data Sheet of Glyphosate 540g/L SL (present as its potassium salt) Page 4 of 7

10. Stability and Reactivity

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight.

Incompatibilities: strong oxidising agents.

Fire Decomposition: Only small quantities of decomposition products are expected from this product at temperatures normally achieved in a fire. This will only occur after heating to dryness. Combustion forms carbon dioxide, and if incomplete, carbon monoxide and smoke. Water is also formed. May form nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas in reducing atmospheres. Potassium compounds. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product will not undergo polymerisation reactions.

11. Toxicological Information

Acute toxicity: Oral LD50 values for glyphosate are greater than 10,000 mg/kg in mice, rabbits, and goats. The toxicities of the technical acid (glyphosate) and the formulated product are nearly the same. It is practically nontoxic by skin exposure, with reported dermal LD50 values of greater than 5000 mg/kg for the acid and isopropylamine salt. The trimethylsulfonium salt has a reported dermal LD50 of greater than 2000 mg/kg. The reported 4-hour rat inhalation LC50 values for the technical acid and salts were 5 to 12 mg/L, indicating moderate toxicity via this route. Some formulations may show high acute inhalation toxicity. While it does contain a phosphatyl functional group, it is not structurally similar to organophosphate pesticides which contain organophosphate esters, and it does not significantly inhibit cholinesterase activity.

Chronic toxicity: Studies of glyphosate lasting up to 2 years, have been conducted with rats, dogs, mice, and rabbits, and with few exceptions no effects were observed. For example, in a chronic feeding study with rats, no toxic effects were observed in rats given doses as high as 400 mg/kg/day. Also, no toxic effects were observed in a chronic feeding study with dogs fed up to 500 mg/kg/day, the highest dose tested.

Reproductive effects: Laboratory studies show that glyphosate produces reproductive changes in test animals very rarely and then only at very high doses (over 150 mg/kg/day). It is unlikely that the compound would produce reproductive effects in humans.

Teratogenic effects: In a teratology study with rabbits, no developmental toxicity was observed in the foetuses at the highest dose tested (350 mg/kg/day). Glyphosate does not appear to be teratogenic.

Mutagenic effects: Glyphosate mutagenicity and genotoxicity assays have been negative.

It appears that glyphosate is not mutagenic.

Carcinogenic effects: Rats given oral doses of up to 400 mg/kg/day did not show any signs

Material Safety Data Sheet of Glyphosate 540g/L SL (present as its potassium salt) Page 5 of 7

of cancer, nor did dogs given oral doses of up to 500 mg/kg/day or mice fed glyphosate at doses of up to 4500 mg/kg/day. It appears that glyphosate is not carcinogenic. **Organ toxicity:** Some microscopic liver and kidney changes, but no observable differences in function or toxic effects, have been seen after lifetime administration of glyphosate to test animals.

Fate in humans and animals: Glyphosate is poorly absorbed from the digestive tract and is largely excreted unchanged by mammals. At 10 days after treatment, there were only minute amounts in the tissues of rats fed glyphosate for 3 weeks. Cows, chickens, and pigs fed small amounts of glyphosate had undetectable levels (less than 0.05 ppm) in muscle tissue and fat. Levels in milk and eggs were also undetectable (less than 0.025 ppm). Glyphosate has no significant potential to accumulate in animal tissue. There is no data to hand indicating any particular target organs.

12. Ecological Information

This product is biodegradable. It will not accumulate in the soil or water or cause long term problems.

Effects on birds: Glyphosate is not harmful to wild birds. The dietary LC50 in both mallards and bobwhite quail is greater than 4500 ppm.

Effects on aquatic organisms: Technical glyphosate acid is practically nontoxic to fish and may be slightly toxic to aquatic invertebrates. The reported 96-hour LC50 values for other aquatic species include greater than 10 mg/L in Atlantic oysters, 934 mg/L in fiddler crab, and 281 mg/L in shrimp. The 48-hour LC50 for glyphosate in *Daphnia* (water flea), an important food source for freshwater fish, is 780 mg/L. Some formulations may be more toxic to fish and aquatic species due to differences in toxicity between the salts and the parent acid or to surfactants used in the formulation. There is a very low potential for the compound to build up in the tissues of aquatic invertebrates or other aquatic organisms.

Effects on other organisms: Glyphosate is nontoxic to honeybees. Its oral and dermal LD50 is greater than 0.1 mg/bee. The reported contact LC50 values for earthworms in soil are greater than 5000 ppm for both the glyphosate trimethylsulfonium salt and formulated product.

Environmental Fate:

Breakdown in soil and groundwater: Glyphosate is moderately persistent in soil, with an estimated average half-life of 47 days. Reported field half-lives range from 1 to 174 days. It is strongly adsorbed to most soils, even those with lower organic and clay content.

Breakdown in water: In water, glyphosate is strongly adsorbed to suspended organic and mineral matter and is broken down primarily by microorganisms. Its half-life in pond water ranges from 12 days to 10 weeks.

Breakdown in vegetation: Glyphosate may be translocated throughout the plant, including to the roots. It is extensively metabolized by some plants, while remaining intact in others.

13. Disposal Considerations

Wastes resulting from the use of this product that can not be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable regulations.

An empty container retains vapour and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Do not cut or weld on or near this container.

Disposal considerations continued:

Metal drums: Triple rinse container, and then offer for recycling or reconditioning, or puncture and disposal of in a sanitary landfill, or by other procedures approved by local authorities.

Plastic Jugs: Do not reuse container. Triple rinse container, then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by local authority, by burning. If burned, stay out of smoke.

14. Transportation Information

This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.

15. Regulation Information

Health & Safety Reporting List

This chemical is not on the Health & safety Report List.

OSHA

This chemical is not considered as highly hazardous by **OSHA**.

IMO IMDG Code

This chemical is not subject to **IMO IMDG Code**

IATA DGR:

This chemical is not subject to **IATA DGR**

16. Other Information

This MSDS contains only safety-related information. For other data see product literature. -

This data in this Material Safety Data Sheet only to the specific material designated and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS: Farmer's Business Network Canada, Inc. PO Box 5607
High River, Alberta Canada T1V 1M7 1-844-200-FARM (3276)

FBN TECHNICAL CLODINAPOP
HERBICIDE

SOLID

FOR USE IN MANUFACTURING OR FORMULATING ONLY

ACTIVE INGREDIENT:
clodinafop-propargyl 96.75%

READ THE LABEL BEFORE USING



REGISTRATION NO.: 30762 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 50-1000 kg

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If exposure to skin or clothing, remove contaminated clothing. Rinse skin immediately with plenty of running water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If exposure through ingestion, call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If exposed through inhalation, move person to fresh air. If person is not breathing, call 911 or an ambulance, then provide artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote is available. Apply symptomatic therapy.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN AND UNAUTHORIZED PERSONNEL.

Strictly observe all precautions for handling and using pesticides. Avoid contact with skin, eyes and clothing. Avoid inhalation of dust. Do not eat, drink or smoke while working. Do not contaminate food, feed or water supplies.

- **Protective Equipment:** Heavy duty cotton or synthetic fabric working clothes (e.g. coveralls). Rubber apron. Heavy-duty shoes or boots. Chemical resistant gloves. Goggles or face-shield. In case of heavy exposure wear: Dust mask.
- **During Work:** After contamination **IMMEDIATELY** wash skin with soap and water. Clean soiled clothing. After eye contact, flush eyes with clean water for several minutes and call a physician or contact a poison control centre **IMMEDIATELY**. Change contaminated clothing.
- **After Work:** Wash thoroughly (shower or bath, wash hair). Change clothing. Thoroughly clean protective gear. Thoroughly clean contaminated equipment with soap or soda solution.

STORAGE

Store in original container in a well-ventilated, cool, dry and secure area. Ship and store away from food, feed or seed.

DECONTAMINATION AND DISPOSAL

Canadian formulators using this product should dispose of unwanted active ingredient and

containers in accordance with municipal or provincial regulations. For additional details and information on clean-up of spills, contact the provincial regulatory agency and the manufacturer.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING CALL 1-613-996-6666 (CANUTEC).

DIRECTIONS FOR USE

To be used only in the manufacture of products registered under the *Pest Control Products Act*.

FBN GLYPHOSATE TECHNICAL

FOR MANUFACTURING, FORMULATING OR REPACKAGING

SOLID

DANGER EYE IRRITANT

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

ACTIVE INGREDIENT: Glyphosate98.0%

REGISTRATION NO. 31062 PEST CONTROL PRODUCTS ACT

READ THE LABEL BEFORE USING.

NET CONTENTS: KG

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

DIRECTIONS FOR USE

To be used only in the manufacture of a pest control product registered under the *Pest Control Products Act*.

PRECAUTIONS

Keep out of reach of children and prevent access by unauthorized personnel
Danger – eye irritant.

Severely irritating to the eye. DO NOT get in eyes.
Thoroughly wash hands and exposed skin before eating, drinking, smoking and after handling.

FIRST AID

IF IN EYES, hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF SWALLOWED, call a poison control centre or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

- Toxic to non-target terrestrial plants.
- Toxic to aquatic organisms.

Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment.

In case of an emergency involving this product, call collect, 24 hours a day:
Environment and Health.....1-613-966-6666 [CANUTEC]

STORAGE

Keep away from food, drink and animal feedstuff.
Keep in original container, tightly closed.

DISPOSAL

Canadian manufacturers should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations. For additional details and clean-up of spills, contact the manufacturer or the provincial regulatory agency.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FBN TECHNICAL QUINCLORAC

FOR USE IN MANUFACTURING AND FORMULATING

ACTIVE INGREDIENT: Quinclorac100%

REGISTRATION NO.: 31364

PEST CONTROL PRODUCTS ACT

IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT, CALL DAY OR NIGHT 1-613-996-6666 (CANUTEC)

POTENTIAL SKIN SENSITIZER

READ THE LABEL BEFORE USING.

NET CONTENTS: 1 kg - 100 kg

KEEP OUT OF THE REACH OF UNAUTHORIZED PERSONNEL

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

DIRECTIONS FOR USE:

To be used only in the manufacture of a herbicide which is registered under the *Pest Control Products Act*. Read the Technical Bulletin for formulation details.

PRECAUTIONS:

KEEP OUT OF THE REACH OF UNAUTHORIZED PERSONNEL.

Potential skin sensitizer.

Wash well after handling and before eating, drinking and/or smoking. Wash contaminated clothing with soap and hot water before re-use. Do not wear contaminated shoes.

FIRST AID INSTRUCTIONS:

IN CASE OF EYE CONTACT:

Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IN CASE OF SKIN OR CLOTHING CONTACT:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF SWALLOWED:

Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

Treat symptomatically.

STORAGE:

Keep in original container during storage.

Store product in cool, dry, well ventilated place away from seed, fertilizer or other pesticides. Keep away from fire or open flame, or other sources of heat. Keep free of moisture in tightly

sealed container.

DECONTAMINATION AND DISPOSAL:

For spills, wear appropriate safety equipment. Absorb spilled product with inert substance such as sawdust or sand. Wash spill area with a detergent solution.

Do not contaminate irrigation water, lakes, streams or ponds by cleaning of equipment or disposal of wastes.

If involved in fire, use water, fog, foam CO₂ or a dry chemical extinguishing media. Noxious fumes may be produced under fire conditions; wear self-contained breathing apparatus. Prevent water used in fire fighting from entering public water supplies.

Canadian formulators using this product should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FBN TECHNICAL QUINCLORAC HERBICIDE

FOR USE IN MANUFACTURING AND FORMULATING

ACTIVE INGREDIENT: Quinclorac100%

REGISTRATION NO.: 32137

**PEST CONTROL PRODUCTS ACT
IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS
PRODUCT, CALL DAY OR NIGHT 1-613-996-6666 (CANUTEC)**

POTENTIAL SKIN SENSITIZER

READ THE LABEL BEFORE USING

NET CONTENTS: Bulk

KEEP OUT OF THE REACH OF UNAUTHORIZED PERSONNEL

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7
1-844-200-FARM (3276)

Distributed by:
Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

DIRECTIONS FOR USE:

To be used only in the manufacture of a herbicide which is registered under the *Pest Control Products Act*. Read the Technical Bulletin for formulation details.

PRECAUTIONS:

KEEP OUT OF THE REACH OF UNAUTHORIZED PERSONNEL.

Potential skin sensitizer.

Wash well after handling and before eating, drinking and/or smoking. Wash contaminated clothing with soap and hot water before re-use. Do not wear contaminated shoes.

FIRST AID INSTRUCTIONS:

IN CASE OF EYE CONTACT:

Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IN CASE OF SKIN OR CLOTHING CONTACT:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF SWALLOWED:

Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE:

Keep in original container during storage.

Store product in cool, dry, well ventilated place away from seed, fertilizer or other pesticides.

Keep away from fire or open flame, or other sources of heat.

Keep free of moisture in tightly sealed container.

DECONTAMINATION AND DISPOSAL:

For spills, wear appropriate safety equipment. Absorb spilled product with inert substance such as sawdust or sand. Wash spill area with a detergent solution.

Do not contaminate irrigation water, lakes, streams or ponds by cleaning of equipment or disposal of wastes.

If involved in fire, use water, fog, foam CO₂ or a dry chemical extinguishing media. Noxious fumes may be produced under fire conditions; wear self-contained breathing apparatus. Prevent water used in fire fighting from entering public water supplies.

Canadian formulators using this product should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

**FBN GLUFOSINATE AMMONIUM
TECHNICAL
SOLID**

FOR USE IN MANUFACTURING, FORMULATING, OR REPACKAGING

ACTIVE INGREDIENT: GLUFOSINATE AMMONIUM.... 95 %

REGISTRATION NO. 33179 PEST CONTROL PRODUCTS ACT

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

READ THE LABEL BEFORE USING

DANGER



POISON

**NET CONTENTS:
25 Kg – 500 Kg**

FOR FURTHER INFORMATION, CONTACT:

Farmer's Business Network Canada Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

DIRECTIONS FOR USE:

To be used only in the manufacture of a pesticide which is registered under the *Pest Control Products Act*.

PRECAUTIONS:

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. Fatal or Poisonous if swallowed. Harmful if inhaled. Avoid contact. Avoid inhaling/breathing dusts and sprays. Wash thoroughly after using or before eating or smoking. Wear protective clothing including goggles and respirator when handling technical material.

FIRST AID:

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

Medical personnel should contact CANUTEC at 1-613-996-6666.

TOXICOLOGICAL INFORMATION:

Initial signs of poisoning include vomiting, diarrhea and nausea. Neurological symptoms (which may include impaired consciousness, convulsions, tremor, and coma) may appear suddenly without prior warning, with a delay (latency period) of 8 to 48 hours. Induction of vomiting is not recommended. It should only be considered if a large amount has been swallowed, if the ingestion occurred within the previous hour, and if the patient is fully conscious. Gastric lavage should be considered within the first 2 hours after ingestion. As there is no specific antidote, treatment should be symptomatic and supportive. In case of convulsions, benzodiazepines should be given. If not effective, phenobarbital can be used.

STORAGE:

Keep in original container during storage. Store product away from food or feed. Keep away from fire, open flame, or other sources of heat. Do not store at temperatures below 0 degrees C or above 50 degrees C. Normal storage temperatures should be between 5-30 degrees C.

DISPOSAL:

Canadian manufacturers should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and clean-up of spills, contact the manufacturer or the provincial regulatory agency.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FBN Diquat Technical

TECHNICAL

FOR MANUFACTURERS USE ONLY

For the manufacture of a pesticide for terrestrial use only

ACTIVE INGREDIENT:

Diquat, present as diquat dibromide21.76%

**PREVENT ACCESS BY UNAUTHORIZED PERSONNEL
READ THE LABEL BEFORE USING**

DANGER



POISON

REGISTRATION NUMBER: **33325**
PEST CONTROL PRODUCTS ACT

NET CONTENTS : **Bulk**

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada T1V 1M7

1-844-200-FARM (3276)

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

IF POISONING IS SUSPECTED, call 1-613-966-6666 or contact a physician or poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes, IMMEDIATELY hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If swallowed, give adsorbent suspension, for example either activated charcoal (100 g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄, Na₂SO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column. Delay oxygen treatment as long as possible.

If in eyes, treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

PRECAUTIONS

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical resistant apron over coveralls, chemical resistant gloves, chemical

resistant footwear and goggles or face shield when handling this liquid concentrate. WASH SPLASHES of concentrate from skin and eyes immediately. REMOVE HEAVILY CONTAMINATED CLOTHING IMMEDIATELY and wash before re-use. DO NOT CONTAMINATE feeds, foodstuffs or water supplies.

STORAGE

Store above 0°C. If crystallization occurs because of storage below this, warm product to room temperature and agitate gently until reconstituted.

DISPOSAL AND DECONTAMINATION

Bulk Tank - Bulk tanks are dedicated to diquat concentrates. Rinse the tanks with water and return to place of shipment. Store rinsate in suitable labelled container and use in next batch.

Lined Drums - Wash drums with clean, fresh water as soon as they have been emptied. Dispose of rinsate in mixing tank. To decontaminate, fill the drums with a 1-2% solution of sodium hydroxide and let stand for 24 hours. Wash out with fresh water. Store in suitable container and use in next batch. Punch holes in the empty containers and liners so that they are unsuitable for further use.

Canadian formulators using this product should dispose of unwanted active ingredient and containers in accordance with municipal or provincial regulations. For additional details and information on clean-up of spills, contact the provincial regulatory agency or the manufacturer.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-613-996-6666***

DIRECTIONS FOR USE

To be used only in the manufacture of a herbicide which is registered under the *Pest Control Products Act*.

2019-6008
2019-11-05

FBN CLETHODIM TECHNICAL
Herbicide Liquid
FOR MANUFACTURING PURPOSES ONLY
READ LABEL BEFORE USING

ACTIVE INGREDIENT:
CLETHODIM.....96.5 %

Registration No. 33594

Pest Control Products Act



CAUTION

POISON

NET CONTENTS: 200-1000L

Farmers Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

DIRECTIONS FOR USE

To be used only in the manufacture of a herbicide which is registered under the Pest Control Products Act.

PRECAUTIONS

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. Wear protective gloves and face shield when handling. Remove any contaminated clothing immediately. Wash hands and exposed skin thoroughly after handling.

FIRST AID

Move person from contaminated area, remove contaminated clothing. Keep patient warm, comfortable, and at rest. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing in eye. Call a poison control centre or doctor for further treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

Do not store at temperatures above 0° C (32° F).

SPILLAGE CLEAN UP

Keep bystanders away from the spill area. Do not smoke, drink, or eat during clean up operations. Wear protective equipment (respirator, coveralls, rubber boots and protective gloves) to prevent inhalation and skin or eye contact during clean up operations. After clean up operations, remove and wash all protective clothing and equipment. Shower and wash thoroughly with soap and water.

For spills occurring on land, avoid runoff into storm sewers and ditches that lead to waterways. Clean up spill immediately. Absorb spill with inert material (such as dry sand or earth), then place in a chemical waste container. Wash spill site with soap and water. Pick up wash liquid with additional absorbent and place in an appropriate container for disposal in an approved site. For spills occurring in water, stop or reduce further contamination. This material is insoluble and is heavier than water. Isolate the contaminated water. Remove the contaminated water and place in an appropriate container for treatment and/or disposal in an approved disposal site.

Dispose of damaged packaging materials in an approved manner. Contact the manufacturer and the provincial regulatory agency in case of a spill and for clean-up of spills.

DISPOSAL

Canadian manufacturers should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additional details and clean-up of spills, contact the manufacturer or the provincial regulatory agency.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offense under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

SAFETY DATA SHEET

DOW AGROSCIENCES CANADA INC.

Product name: VP480 Herbicide

Issue Date: 09/14/2017

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: VP480 Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
#2400, 215 - 2ND STREET S.W.
CALGARY AB T2P 1M4
CANADA

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid

Color Yellow

Odor Amine

Hazard Summary

WARNING!!

May cause allergic skin reaction.

May cause eye irritation.

Isolate area.

Potential Health Effects

Eyes: May cause moderate eye irritation.
May cause slight corneal injury.

Skin: Brief contact may cause slight skin irritation with local redness.
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Has demonstrated the potential for contact allergy in mice.

Inhalation: No adverse effects are anticipated from single exposure to mist.
Based on the available data, narcotic effects were not observed.

Ingestion: Very low toxicity if swallowed.
Harmful effects not anticipated from swallowing small amounts.

Chronic Exposure: For similar active ingredient(s).
Glyphosate.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.
Weight of evidence evaluation of epidemiology studies supports no association between glyphosate exposure and cancer.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent
Glyphosate DMA Salt	34494-04-7	50.2%
Balance	Not available	49.8%

4. FIRST AID MEASURES**Description of first aid measures**

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be available in work area.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Phosphorus oxides. Nitrogen oxides. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Avoid prolonged or repeated contact with skin. Avoid contact with eyes, skin, and clothing. Do not swallow. Avoid breathing vapor or mist. Wash thoroughly after handling. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Do not store in: Galvanized containers. Steel.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Consult local authorities for recommended exposure limits.

Exposure limits have not been established for those substances listed in the composition, if any have been disclosed.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Liquid
Color	Yellow
Odor	Amine
Odor Threshold	No data available
pH	4.59 <i>pH Electrode</i>
Melting point/range	Not applicable
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	closed cup > 100 °C <i>Setaflash Closed Cup ASTM D3828</i>
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	No data available
Water solubility	Soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	62.3 mPa.s at 20 °C 32.5 mPa.s at 40 °C
Kinematic Viscosity	No data available
Explosive properties	No
Oxidizing properties	No significant increase (>5C) in temperature.
Liquid Density	1.2114 g/ml
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Active ingredient decomposes at elevated temperatures.

Incompatible materials: Avoid contact with: Acids. Halogens. Oxidizers. Peroxides. Flammable hydrogen may be generated from contact with metals such as: Steel.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrocarbons. Nitrogen oxides. Phosphorus oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

For similar material(s):

LD50, Rat, female, > 5,000 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

For similar material(s):

LD50, Rat, male and female, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Based on the available data, narcotic effects were not observed.

For similar material(s):

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.63 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight corneal injury.

Sensitization

For similar material(s):

Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For similar material(s):

Glyphosate.

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity

For similar active ingredient(s). Glyphosate. Did not cause cancer in laboratory animals. Weight of evidence evaluation of epidemiology studies supports no association between glyphosate exposure and cancer.

Teratogenicity

For similar active ingredient(s). Glyphosate. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity

For similar active ingredient(s). Glyphosate. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Mutagenicity

This material was not mutagenic in an Ames bacterial assay. Animal genetic toxicity studies were negative.

Genetic Toxicity in vivo

Mouse Bone Marrow Micronucleus Test Mouse male Oral gavage negative Result: negative

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity**Acute toxicity to fish**

For similar material(s):

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

For similar material(s):

LC50, *Oncorhynchus mykiss* (rainbow trout), static test, 96 Hour, 11 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, 17 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), static test, 72 Hour, Growth rate inhibition, 2.1 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to Above Ground Organisms

Based on information for a similar material:

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Based on information for a similar material:

oral LD50, *Coturnix japonica* (Japanese quail), > 2250mg/kg bodyweight.

Based on information for a similar material:

oral LD50, *Apis mellifera* (bees), 48 Hour, > 250µg/bee

Based on information for a similar material:

contact LD50, *Apis mellifera* (bees), 48 Hour, > 250µg/bee

Toxicity to soil-dwelling organisms

Based on information for a similar material:

LC50, Eisenia fetida (earthworms), 14 d, survival, > 996.6 mg/kg

Persistence and degradability**Glyphosate DMA Salt**

Biodegradability: For similar active ingredient(s). Glyphosate. Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential**Glyphosate DMA Salt**

Bioaccumulation: For similar active ingredient(s). Glyphosate. Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is slight (Koc between 2000 and 5000). For similar active ingredient(s). Glyphosate. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Balance

Bioaccumulation: No relevant data found.

Mobility in soil**Glyphosate DMA Salt**

For similar active ingredient(s).
Glyphosate.
Expected to be relatively immobile in soil (Koc > 5000).

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Glyphosate DMA Salt)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Glyphosate DMA Salt

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Glyphosate DMA Salt)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Glyphosate DMA Salt
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Glyphosate DMA Salt)
UN number	UN 3082
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act (PCPA) Registration Number: 28840

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	1	0

Revision

Identification Number: 101300863 / A215 / Issue Date: 09/14/2017 / Version: 1.0

DAS Code: GF-3434

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

YUMA[®] GL HERBICIDE

EMULSIFIABLE CONCENTRATE

FOR SALE FOR USE ON CAMELINA, CANOLA, FLAX (INCLUDING LOW LINOLENIC ACID VARIETIES), , SOYBEANS (INCLUDING VARIETIES DESIGNATED "STS[®]", SEED ALFALFA, LENTILS, PEAS (FIELD AND PROCESSING), SEEDLING LEGUMES FOR SEED PRODUCTION, SEEDLING OR ESTABLISHED CREEPING RED FESCUE FOR SEED PRODUCTION, DRY FABA BEANS (DRY BROAD BEANS), AND NARROW LEAF LUPIN, ESTABLISHED RED AND ALSIKE CLOVER FOR SEED PRODUCTION, SUGARBEATS, AND SNAP BEANS; DRY COMMON BEANS; FOR USE IN WESTERN CANADA ON CHICKPEAS; CONDIMENT AND OILSEED TYPE ORIENTAL MUSTARD; ETHIOPIAN MUSTARD (BRASSICA CARINATA), THE FOLLOWING BEANS IN SOUTHERN ONTARIO (LIMA, ADZUKI AND MUNG BEANS); RUTABAGAS IN ONTARIO AND QUEBEC; AND ON INDUSTRIAL HEMP GROWN FOR FIBRE PRODUCTION IN ONTARIO ONLY AND CUCURBIT VEGETABLES IN CANADA.

AGRICULTURAL

GUARANTEE: Quizalofop-P-ethyl 96 g/L

REGISTRATION NO. 30100
PEST CONTROL PRODUCTS ACT

READ THE LABEL AND THIS BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

DANGER – CORROSIVE TO EYES
WARNING – SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

NET CONTENTS: 1 TO 1500 L

Nissan Chemical Industries, Ltd. (Nissan)
c/o Nissan Chemical America Corporation
10777 Westheimer
Houston, TX 77042

Distributed by:
Gowan Company

P.O. Box 5569
Yuma, AZ 85366-5569

Product Information: 1-800-883-1844

For Medical Emergencies: 1-888-478-0798 (24 hours)
For Spills, Leaks or Fire: 1-800-424-9300 (24 hours)

SAFETY INFORMATION

PRECAUTIONS:

- **KEEP OUT OF REACH OF CHILDREN**
- DANGER – CORROSIVE TO EYES
- WARNING - SKIN IRRITANT
- POTENTIAL SKIN SENSITIZER
- May be harmful if swallowed, inhaled or absorbed through skin. Causes eye irritation.
- Do not get in eyes or on clothing. Avoid contact with skin. Avoid breathing vapours or spray mist. Use adequate ventilation.
- When using, do not eat, drink or smoke. Wash skin thoroughly with soap and water after handling.

PERSONAL PROTECTIVE EQUIPMENT

- Wear goggles or face shield, chemical resistant gloves and coveralls over long-sleeved shirt and long pants during mixing, loading, clean up and repair.
- For worker protection during application, wear a hat and coveralls over long-sleeved shirt and long pants.
- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse.

FIRST AID:

IF SWALLOWED:

Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES:

Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or the product name and Pest Control Product Registration number with you when seeking medical attention.

For medical emergencies call 1-888-478-0798 (24 hours)

TOXICOLOGICAL INFORMATION: THIS PRODUCT CONTAINS PETROLEUM DISTILLATES.
Vomiting may cause aspiration pneumonia. Treat symptomatically.

USE PRECAUTIONS

IMPORTANT

Injury to or loss of desirable trees or vegetation may result from failure to observe the following:

- Do not apply, drain or flush equipment on or near desirable trees or plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.
- Do not use on lawns, walks, driveways, tennis courts, or similar areas.
- Prevent drift of spray to desirable plants.
- Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, school and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
- Do not contaminate any body of water including irrigation water that may be used on other crops.

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
TOXIC to aquatic organisms.

Use caution when handling YUMA GL Herbicide as accidental spills or splashes may harm the finish on painted equipment.

ENVIRONMENTAL PRECAUTIONS:

This product contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment. This product is toxic to fish. Overspray or drift to fish-bearing water must be avoided. Overspray or drift onto important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders and woodlots should be avoided.

USER PRECAUTIONS:

- Do not apply to soybeans within 80 days of harvest.
- Do not apply to canola within 64 days of harvest.
- Do not apply to flax within 82 days of harvest.
- Do not apply to lentils or peas (field and processing) within 65 days of harvest.
- Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days following application for scouting activities in camelina. For all other crops, do not enter or allow worker entry into treated area during the REI of 12 hours.

- Do not apply YUMA GL Herbicide to plants stressed by severe conditions such as drought, lowfertility, or cool weather as control of weeds may be reduced.
- Do not apply YUMA GL Herbicide to crops stressed by severe conditions such as drought, low fertility, saline soils, water logged soils (soils at or near field capacity), disease or insect damage as crop injury may result.
- Drought, disease or insect damage following application may also result in crop injury.
- Rainfall within 1 hour of application may reduce effectiveness of the spray.
- Avoid drift to other crops and non-target areas. Grass crops such as corn and wheat etc. are highly sensitive to YUMA GL Herbicide.
- Do not contaminate irrigation water.
- **DO NOT FREEZE**

CAUTION:

Do not graze the treated crops or cut for hay; sufficient data are not available to support such use.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca.

GENERAL INFORMATION

YUMA GL Herbicide is a selective, post-emergence herbicide for the control of annual and perennial grasses in the following crops:

- Camelina
- Canola
- Flax, (including low linolenic acid varieties)
- Soybeans (including varieties designated "STS[®]")
- Seed Alfalfa
- Lentils
- Peas (field and processing)
- Seedling legumes for seed production
- Seedling or established creeping red fescue for seed production
- Dry faba beans (dry broad beans)
- Narrowleaf lupin
- Established red and alsike clove for seed production
- Sugarbeets
- Snap Beans
- Dry Common Beans
- Chickpeas (western Canada only)
- Condiment and oilseed type Oriental Mustard
- Ethipioan mustard (brassica carinata)
- Lima, adzuki and Mung Beans (southern Ontario only)
- Rutabagas (Ontario and Quebec only)
- Industrial Hemp grown for fibre production (Ontario only)
- Cucurbit vegetables

Recommended rates and timing for YUMA GL Herbicide application will provide control of the emerged grasses present. YUMA GL Herbicide does not control sedges or broadleaf weeds.

Grass crops, including wheat, barley, rye, oats, and corn are highly sensitive to YUMA GL Herbicide.

When not in use, keep container closed to prevent evaporation or loss through spillage.

Under certain environmental conditions, minor leaf spotting may occur on soybeans. New growth is unaffected and there is no adverse effect on crop yield.

MODE OF ACTION

YUMA GL Herbicide is a systemic herbicide which is rapidly absorbed and readily translocated from the treated foliage to the root systems and growing points of the plant.

Treated plants show a reduction in growth and a loss of competitiveness. An early yellowing or browning of the younger plant tissues is followed by a progressive collapse of the remaining foliage. These symptoms will generally be observed in one to three weeks depending on the grass species treated and the environmental conditions.

SPRAY PREPARATION

GROUND APPLICATION: (For YUMA GL Herbicide used alone or in tank mixes)

Use a properly calibrated sprayer that will provide thorough coverage of the weeds with the spray. Apply a minimum of 100 L/ha total spray volume. Use flat fan nozzles. DO NOT USE FLOOD JET NOZZLES.

Use 50 mesh screens or larger. A spray pressure of 210-275 kPa is recommended. Under heavy weed pressure, use increased volumes up to 400 L/ha total spray volume.

Avoid overlapping. Shut off spray booms while starting, turning, slowing or stopping to prevent over application.

Use spray preparation of YUMA GL Herbicide within 24 hours or product degradation may occur. If spray preparation is left without agitation, thoroughly agitate before using.

Do not apply when environmental conditions such as wind speed, temperature, relative humidity, etc. are favourable for drift to occur.

Do not apply to terrain where there is a potential for surface run-off to enter aquatic systems.

NOTE: Extreme care must be taken to prevent drift to desirable plants or non-target agricultural land.

AERIAL APPLICATION: (Only for YUMA GL Herbicide used alone)

Apply only by fixed-wing or rotary aircraft equipment, which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed. Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions:

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application. The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label. All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly. Do not use human flaggers.

Product Specific Precautions:

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-883-1844 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this specific product must meet and/or conform to the following:

- Apply a minimum of 25 L of spray volume per hectare.
- Apply a maximum of 50 L of spray volume per hectare.

MIXING INSTRUCTIONS:

1. Make sure that spray tank is thoroughly cleaned before mixing.
2. Fill tank half full with water. KEEP AGITATOR RUNNING.
3. If tank mixing YUMA GL Herbicide with another pesticide and/or adjuvant, use the following sequence:
 - a) Water conditioning agents
 - b) Wettable Powders (WP)
 - c) Dry Granules WDG)
 - d) Suspension Concentrates (SC) or Flowables
 - e) Emulsifiable concentrates (EC) or oil based products (Yuma GL Herbicide)
 - f) Surfactants (NIS, COC, MSO)

Ensure that the herbicide is completely mixed before proceeding to the next step.

4. Add the rest of the required water to the tank. Mix well before applying to the crop.

On repeat tank loads, ensure that the amount of spray solution left in the tank from the previous load is less than 10% of volume about to be mixed.

Do not mix, load or clean spray equipment where there is a potential to contaminate wells or aquatic systems.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, YUMA GL Herbicide is a Group 1 herbicide. Any weed population may contain or develop plants naturally resistant to YUMA GL Herbicide and other Group 1 herbicides. The resistance biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of YUMA GL Herbicide or other Group 1 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative

- herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
 - Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
 - For further information or to report suspected resistance, contact your local Nissan representative or 1-800-883-1844 for further information

DIRECTIONS FOR USE

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when the wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing-or rotor- span.

Buffer Zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Use Rate		Buffer Zones (metres) (Required for the Protection of:		
			Aquatic Habitat of Depths		Terrestrial Habitat
			Less than 1 m	Greater than 1 m	
Field sprayer*	Field crops up to 0.75 L/ha		1	0	3
Aerial	Field crops at 0.38 L/ha	Fixed Wind	0	0	70
		Rotary Wind	0	0	55
	Field crops at 0.5 L/ha	Fixed Wind	0	0	85
		Rotary Wind	0	0	70
	Field crops at 0.75 L/ha	Fixed Wind	1	0	125
		Rotary Wind	1	0	100

* For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where the individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

POSTEMERGENCE APPLICATIONS - CANOLA, FLAX (INCLUDING LOW LINOLENIC ACID VARIETIES), SOYBEANS (INCLUDING VARIETIES DESIGNATED “STS”), SEED ALFALFA, LENTILS AND PEAS (FIELD AND PROCESSING) AND SEEDLING LEGUMES FOR SEED PRODUCTION; FOR USE IN WESTERN CANADA ON CONDIMENT AND OILSEED TYPE ORIENTAL MUSTARD:

Apply the specified rate of YUMA GL Herbicide with a surfactant such as:

SURFACTANT	RATE
XA Oil Concentrate	5 – 10 L per 1000 L spray solution
Merge*	5 – 10 L per 1000 L spray solution
Sure-Mix*	0.5% (0.5 L per 100 L spray solution)

at the leaf stage of the grass indicated in the table below:

RATE	WEEDS CONTROLLED	WEED LEAF STAGE
0.38 L/ha	green foxtail	2 leaf to early tillering
	volunteer barley	2 leaf to early tillering
	volunteer corn	2 – 6 leaf
	volunteer oats	†2 leaf to early tillering
	volunteer wheat	2 leaf to early tillering
	wild oats	1 – 5 leaf without tillers
0.50 L/ha	Those controlled by 0.38 L/ha and:	
	barnyard grass	2 leaf to early tillering
	wild oats	†1 – 5 leaf to early tillering (up to two tillers)
	fall panicum	2 leaf to early tillering
	old witchgrass	2 leaf to early tillering
	proso millet	2 leaf to early tillering
	yellow foxtail	2 leaf to early tillering
	quackgrass††	2 – 6 leaf
	foxtail barley††	3 leaf to 4 leaf + tillers
0.75 L/ha	Those controlled by 0.50 L/ha and:	
	quackgrass	2 – 6 leaf

†best results on volunteer/wild oats if application is made before tillering begins

†† suppression only

NOTE: Use the higher rate of XA Oil Concentrate or Merge when wild oats or quackgrass are the main target weeds, or under conditions not conducive to good growth.

When using a broadleaf only herbicide, wait a minimum of 24 hours after the YUMA GL Herbicide application to apply the broadleaf herbicide or wait 7 days after the broadleaf application to apply YUMA GL Herbicide.

CROP SPECIFIC RECOMMENDATIONS

Use Yuma GL with tank mix product listed or other registered products which would be appropriate.

NOTE - Refer to:

- DIRECTIONS FOR USE section of this label for a list of surfactant options
- DIRECTIONS FOR USE section of this label for a complete list of grassy weeds and their stages of control
- USE PRECAUTIONS section of this label for additional application and/or use precaution instructions
- SPRAY PREPARATION section of this label for mixing instructions.

CROP	RATE	COMMENTS
Seed Alfalfa	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND OR AERIAL APPLICATION • One application per season only
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Flax (including low linolenic acid varieties)	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND OR AERIAL APPLICATION • One application per season only
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Lentils, Peas (field & processing)	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND OR AERIAL APPLICATION • One application per season only
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Chickpeas (western Canada only)	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • One application per season only • Use a minimum of 100 L of water/ha
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	

CROP	RATE	COMMENTS
Oriental Mustard (condiment and oilseed type) (western Canada only)	0.38 – 0.75 L/ha YUMA GL Herbicide PLUS	<ul style="list-style-type: none"> • GROUND OR AERIAL APPLICATION • One application per season only
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
	0.38 – 0.50 L/ha YUMA GL Herbicide PLUS	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • One application per season only • Refer to the Muster* Toss-N-Go* label for broadleaved weeds controlled • No additional surfactant is needed when Merge* or Sure-Mix* is used • For best results observe all timings, restrictions and recommendations specified on both the YUMA GL Herbicide and Muster* Toss-N-Go* labels • IMPORTANT: carefully follow sprayer clean-out directions on the Muster* Toss-N-Go* label • NOTE: Stinkweed is controlled by 20 g/ha of Muster* Toss-N-Go* when tank mixed with YUMA GL Herbicide and Merge* or Sure-Mix*
	20 g/ha Muster* Toss-N-Go* PLUS	
Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)		
Canola (rapeseed)	0.38 – 0.75 L/ha YUMA GL Herbicide PLUS	<ul style="list-style-type: none"> • GROUND OR AERIAL APPLICATION • One application per season only
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
	0.38 – 0.5 L/ha YUMA GL Herbicide PLUS	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • One application per season only • Refer to the Muster* Herbicide label for broadleaved weeds controlled • No additional surfactant is needed when Merge* or Sure-Mix* is used • For best results observe all timings, restrictions and recommendations specified on both the YUMA GL Herbicide and Muster* Herbicide labels • IMPORTANT: carefully follow sprayer clean-out directions on the Muster* Herbicide label • NOTE: Stinkweed is controlled by 20 g/ha of Muster* Herbicide when tank mixed with YUMA GL Herbicide and Merge* or Sure-Mix*
	20 – 30 g/ha Muster* Herbicide PLUS	
Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)		

Soybeans (including varieties designated "STS")	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND OR AERIAL APPLICATION • One application per season only
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
	0.38 – 0.63 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • One application per season only • Refer to the Classic* Herbicide label for general information, use precautions, a list broadleaved weeds controlled and the most appropriate application timings. • If the timings for grassy and broadleaf weeds do not coincide, a sequential application of the grass and broadleaf herbicides is required to ensure optimal weed control. • NOTE: A tank mix of YUMA GL and Classic Herbicide may result in a reduction in control of quackgrass and yellow foxtail. Use <u>at least</u> 0.50 L/ha of YUMA GL Herbicide. For <u>most consistent</u> results, use the 0.63 g/L rate of Yuma GL Herbicide
	PLUS	
	36 g/ha Classic* Herbicide	
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
	0.63 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • Refer to the Pinnacle* Toss-N-Go* Herbicide and Basagran* Forte Herbicide labels for general information, use precautions, a list of broadleaf weed-specific rates and the most appropriate application timings. • If the timings for grassy and broadleaf weeds do not coincide, a sequential application may be required to ensure satisfactory control. • DO NOT apply before the crop has 1 – 2 full trifoliolate leaves. • NOTE: A tank mix of YUMA GL Herbicide, Pinnacle* Toss-N-Go* Herbicide and Basagran* Forte Herbicide may result in a reduction in grassy weed control. For optimum control, a rate of 0.63 L/ha YUMA GL Herbicide is recommended. • When growing conditions are not conducive to good growth, use the higher rate of XA Oil Concentrate. • DO NOT FREEZE
	PLUS	
	5.5 – 8.0 g/ha Pinnacle* Toss-N- Go* Herbicide	
	PLUS	
	1.75 – 2.25 L/ha Basagran® Forte Herbicide	
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
	0.50 L/ha Yuma GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • Refer to the Pinnacle* Toss-N-Go* Herbicide label for general information, use precautions, a list broadleaf weed-specific rates and the most appropriate application timings. • If the timings for grassy and broadleaf weeds do not coincide, a sequential application may be required to ensure satisfactory control. • DO NOT apply before the crop has 1 – 2 full trifoliolate
	PLUS	
	5.5 – 8.0 g/ha Pinnacle* Toss-N- Go* Herbicide	
	PLUS	
	Surfactant (see DIRECTIONS FOR	

	USE section of this label for a list of surfactant options)	leaves. <ul style="list-style-type: none"> Control of velvetleaf may be reduced when Pinnacle*Toss-N-Go* Herbicide is tank mixed with YUMA GL Herbicide. For optimal control, apply the products separately. When growing conditions are not conducive to good growth, use the higher rate of XA Oil Concentrate. DO NOT FREEZE
	0.38 – 0.63 L/ha YUMA GL Herbicide PLUS 42.8 g/ha Reliance* STS* Toss-N-Go* Herbicide PLUS Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	<ul style="list-style-type: none"> GROUND APPLICATION ONLY Tankmix for the control of annual grassy and broadleaf weeds in sulfonyleurea tolerant soybean varieties (varieties designated “STS”) NOTE: A tank mix of YUMA GL and Reliance* STS* Toss-N-Go* Herbicide may result in a reduction in control of quackgrass and yellow foxtail. Use <u>at least</u> 0.50 L/ha of YUMA GL Herbicide. For <u>most consistent</u> results, use the 0.63 g/L rate of Yuma GL Herbicide Refer to Reliance* STS* Toss-N-Go* Herbicide label for general information, use precautions, a list broadleaf weed-specific rates and the most appropriate application timings. If the timings for grassy and broadleaf weeds do not coincide, a sequential application may be required to ensure satisfactory control.

NOTE TO USERS: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Nissan Chemical Industries, Ltd. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion Program. Nissan Chemical Industries, Ltd. itself makes no representation or warranty with respect to product performance (efficacy) and crop tolerance (phytotoxicity) of this product when used on the crops listed below. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Nissan Chemical Industries, Ltd. harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

Refer to:

- DIRECTIONS FOR USE section of this label for a list of surfactant options
- DIRECTIONS FOR USE section of this label for a complete list of grassy weeds and their stages of control
- USE PRECAUTIONS section of this label for additional application and/or use precaution instructions
- SPRAY PREPARATION section of this label for mixing instructions.

CROP	RATE	COMMENTS
ETHIOPIAN MUSTARD (BRASSICA CARINATA)	0.38 or 0.5 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND OR AERIAL APPLICATION • Refer to Directions for Use for the leaf stage of the grassy weeds • Do not apply within 64 days of harvest.
	PLUS	
	0.5% v/v Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Dry Faba Beans (Dry Broad Beans) and Narrow Leaf Lupin	0.38 -0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLIATION ONLY • Use 100-400 litres of water/ha. • Use as single post emergent spray • Do not apply within 30 days of harvest.
	PLUS	
	0.5% v/v Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Established red and alsike clovers for seed production	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • Do not graze or cut for hay in the year of treatment • Do not apply within 30 days of harvest. • Application should be made before crop canopy closes. • Make one application per growing season. • Apply a minimum of 100 L/ha of total spray volume.
	PLUS	
	0.5% v/v Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	

GROUP 9 – CUCURBIT VEGETABLES	0.38 – 0.75 L/ha YUMA GL Herbicide	Including: citron melon; cucumber; gherkin; edible gourd (hyotan, cucuzza); Chinese okra; Chinese cucumber; muskmelon hybrids and or cultivars of Cucumis melo including true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon; pumpkin; summer squash including crookneck squash, scallop squash, straightneck squash, vegetable marrow, and zucchini; winter squash including butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash; watermelon including hybrids and/or varieties of Citrullus lanatus.
	PLUS 0.5% v/v Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Camelina Sativa	0.38 – 0.75 L/ha YUMA GL Herbicide PLUS 0.5% v/v Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	<ul style="list-style-type: none"> GROUND APPLIATION ONLY Use in a minimum of 100 litres of water/ha. Do not apply within 64 days of harvest. DO NOT use open cab equipment if treating more than 290 ha/day. If treating more than 290 ha/day, closed cab equipment, long-sleeved shirt, long pants, socks, and shoes are required for application. DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days following application for scouting activities in camelina.
Seedling Legumes for Seed Production Only (for bird's-foot trefoil, alsike, red, white and sweet clover and sainfoin)	0.50 - 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> GROUND APPLICATION ONLY Apply before crop canopy closes to maximize spray coverage. One application per season only Use a properly calibrated sprayer that will provide thorough coverage of the weeds Apply a minimum of 100 L / ha of total spray volume. DO NOT graze or cut for hay in the year of treatment
	PLUS Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Established Creeping Red Fescue for Seed Production Only	0.50 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> GROUND APPLICATION ONLY Refer to Ally* Herbicide label for general information, use precautions, a list broadleaf weed-specific rates and the most appropriate application timings. Apply YUMA GL Herbicide + ALLY* Herbicide tank mixture post emergent to the first main flush of actively growing weeds, when established creeping red fescue is in the 2 leaf to flag leaf (shot blade) stage. Apply before the crop canopy is dense enough to prevent thorough coverage of the weeds.
	PLUS	
	7.5 g/ha Ally* Herbicide	
	PLUS Surfactant (see DIRECTIONS FOR USE section of this label for a list of	

	surfactant options)	<ul style="list-style-type: none"> One application per season only.
Seedling or Established Creeping Red Fescue for Seed Production	0.50 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> GROUND APPLICATION ONLY Apply when quackgrass is in the 2-6-leaf stage and when annual grassy weeds are from the 2-leaf stage to early tillering. Apply before crop canopy closes to maximize spray coverage. One application per season only Use a properly calibrated sprayer that will provide thorough coverage of the weeds with the spray solution. Apply a minimum of 100 L / ha of total spray volume DO NOT graze or cut treated established creeping red fescue for feed or hay in the year of treatment.
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Snap Beans	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> GROUND APPLICATION ONLY One application per season only at the 2- to 5-leaf stage of annual grasses and up to the 3-leaf stage of quackgrass. DO NOT apply within 30 days of harvest.
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Sugarbeets	0.38 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> GROUND APPLICATION ONLY Apply YUMA GL Herbicide as a post emergent broadcast application to small, emerged grassy weeds between the 2 leaf to early tillering leaf stage. Apply before crop canopy closes to maximize spray coverage. If a second flush of annual grasses or volunteer cereals is observed, apply an additional (sequential) application of YUMA GL Herbicide at 0.38 L /ha + recommended adjuvant. For optimum control of grassy weeds, volunteer cereals and quackgrass, apply YUMA GL Herbicide at 0.75 L/ha with recommended adjuvant. Do not exceed an accumulative, seasonal use rate of 0.75 L/ha of YUMA GL Herbicide per year. Use a properly calibrated sprayer that will provide thorough coverage of the weeds with the spray solution. DO NOT apply within 60-80 days of harvest.
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Dry Common Beans (<i>Phaseolus vulgaris spp</i>) including, but not limited to all dry common bean types listed on this label	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> GROUND APPLICATION ONLY Dry common bean varieties may vary in their tolerance to herbicides, including YUMA GL Herbicide. The tolerance of some dry common bean varieties listed on this label has been confirmed when YUMA GL Herbicide is applied as directed. Since not all dry common bean varieties have been tested for tolerance to YUMA GL Herbicide, first use of YUMA GL Herbicide should be limited to a small area of each variety to confirm tolerance prior to adoption as a
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	

		<p>general field practice. Additionally, consult your seed supplier for information on the tolerance of specific varieties of dry common beans to YUMA GL Herbicide.</p> <ul style="list-style-type: none"> • DO NOT apply within 30 days of harvest. • One application per season
Pinto, Navy, Great Northern, Pink and Small Red Beans (western Canada only)	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • Apply a minimum of 100 L / ha of total spray volume • One application per season. • DO NOT apply within 30 days of harvest.
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
White, White and Red Kidney, Cranberry, Black, Brown and Yellow Eye, Lima, Mung, Otebo and Adzuki Beans (southern Ontario Only)	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • Apply at the 2-5-leaf stage of the annual grasses. • One application per season. • DO NOT apply within 30 days of harvest.
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Pinto, Pink, Great Northern and Small Red Beans (western Canada only)	0.63 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • One application per season only • Refer to the Basagran* Herbicide label for general information, use precautions, a list broadleaf weed-specific rates and the most appropriate application timings. • DO NOT apply within 65 days of harvest
	PLUS	
	1.75 – 2.25 L/ha Basagran* Herbicide	
	PLUS Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Rutabagas (Ontario and Quebec only)	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • Apply at the 2-5-leaf stage of the annual grasses. • One application per season. • DO NOT apply within 30 days of harvest.
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	
Industrial Hemp for Fibre Production only	0.38 – 0.75 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • One application per season only when the crop is at the 2-6 crop leaf stage (6-25 cm in height) • Use in a minimum of 100 litres of water/ha with a spray pressure of 210-275 kPa.
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	

Soybeans (Ontario only)	0.38 L/ha YUMA GL Herbicide	<ul style="list-style-type: none"> • GROUND APPLICATION ONLY • For the control of long-spined sandbur apply as a single post emergent spray at the 2 leaf to tillering stage. • DO NOT apply within 80 days of harvest.
	PLUS	
	Surfactant (see DIRECTIONS FOR USE section of this label for a list of surfactant options)	

SPRAYER CLEANOUT

Thoroughly clean all traces of YUMA GL Herbicide from application equipment immediately after use. Flush tank, pump, hoses, and boom with several changes of water after removing nozzle tips and screens (clean these parts separately). Failure to thoroughly clean the equipment may result in injury to subsequently sprayed grass crops.

STORAGE AND DISPOSAL

STORAGE:

Store product in original container only, away from fertilizer, seed, food or feed. Not for use or storage in or around the home. Keep container closed. DO NOT FREEZE.

DISPOSAL:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

For the clean-up of spills, leaks or to report a fire: 1-800-424-9300 (24 hours)

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

YUMA® GL is a registered trademark of Gowan Company, L.L.C.

*All other products mentioned are trademarks of their respective companies.

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier****Trade name:** *YUMA® GL***CAS Number:** *Quizalofop P-Ethyl (96 g/L) : 100646-51-3***Registration number** *PCP Registration No.: 30100***1.2 Relevant identified uses of the substance or mixture and uses advised against****Sector of Use** *Agriculture***Application of the substance / the mixture** *Group 1 Herbicide***1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:***Nissan Chemical Industries, Ltd. (Nissan)**c/o Nissan Chemical America Corporation**10777 Westheimer**Houston, TX 77042**2012 0002 2012 05 07***Distributed by:***Gowan Company***Further information obtainable from:** *sds@gowanco.com***1.4 Emergency telephone number:***Chemtrec® Emergency Telephone 24 - Hours: (Spills, leak or fire) Inside U.S. & Canada: (800) 424-9300**Outside the U.S. & Canada: +011 (703) 527-3887**For medical emergency (Prosar®): (888) 478-0798***SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008***The product is not classified according to the CLP regulation.***Classification according to Directive 67/548/EEC or Directive 1999/45/EC** *Not applicable.***Additional information:****Physical Properties***Appearance: Dark amber liquid**Odor: Aromatic hydrocarbon***Symptoms of Acute Exposure (Naphthalene)***Symptoms from excessive prolonged inhalation exposure to naphthalene may include headache, dizziness**and confusion. Ingestion of naphthalene may initially include jaundice, bloody urine, flank pain, anemia,**red blood cell destruction, hemolysis and acute renal failure. Higher exposures may lead to lens opacity,**temporary nervous**system depression resulting in dizziness, headache, confusion, incoordination, loss of consciousness.**Coma and fatality (gross overexposure) may also occur.***Symptoms of Chronic Exposure (N-methyl-2-pyrrolidone)***Prolonged exposure to n-methyl-2-pyrrolidone may include burning, redness, swelling, pain, blisters, cracking, or rash.***Primary Routes of Exposure***Oral, dermal, ingestion, inhalation***2.2 Label elements****DANGER – CORROSIVE TO EYES****WARNING SKIN IRRITANT****POTENTIAL SKIN SENSITIZER**

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KEEP OUT OF REACH OF CHILDREN

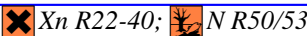
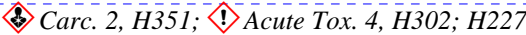
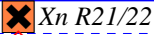
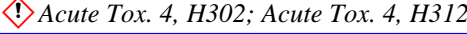

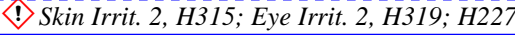
· **Labelling according to EU guidelines:**· **Hazard-determining components of labelling:**

· Quizalofop-p-ethyl

· **2.3 Other hazards**· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterization: Mixtures**· **Description:** Mixture of substances listed below with nonhazardous additions.· **Dangerous components:**

91-20-3	naphthalene	 Xn R22-40; N R50/53 Carc. Cat. 3  Carc. 2, H351; Acute Tox. 4, H302; H227	<11.0%
100646-51-3	Quizalofop-p-ethyl	 Xn R21/22  Acute Tox. 4, H302; Acute Tox. 4, H312	96g/L
	M-Pyrol	 Xi R36/38  Skin Irrit. 2, H315; Eye Irrit. 2, H319; H227	<8.0%

· **SVHC**

M-Pyrol

SECTION 4: First aid measures

· **4.1 Description of first aid measures**· **General information:**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

You may also contact 1-888-478-0798 for emergency medical treatment information.

· **After inhalation:**

· Move person to fresh air.

· If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.

· Call poison control center or doctor for further treatment advice.

· **After skin contact:**

· Take off contaminated clothing.

· Rinse skin immediately with plenty of water for 15-20 minutes.

· Call a poison control center or doctor for treatment advice.

· **After eye contact:**

· Hold eye open and rinse slowly and gently with water for 15-20 minutes.

· Remove contact lenses, if present, after first 5 minutes, then continue rinsing eyes.

· Call a poison control center or doctor for treatment advice.

· **After swallowing:**

· Call a poison control center or doctor immediately for treatment advice.

· Do not induce vomiting unless told to do so by the poison control center or doctor.

· Do not give anything by mouth to an unconscious person.

· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

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4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

5.2 Special hazards arising from the substance or mixture

Vapor forms explosive mixture with air. Heating can release vapors which can be ignited.

5.3 Advice for firefighters

Protective equipment: Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

May be harmful if swallowed, inhaled or absorbed through skin. Causes eye irritation. Do not get in eyes or on clothing. Avoid contact with skin. Avoid breathing vapours or spray mist. Use adequate ventilation. When using, do not eat, drink or smoke. Wash skin thoroughly with soap and water after handling. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, school and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days following application for scouting activities in camelina. For all other crops, do not enter or allow worker entry into treated area during the REI of 12 hours.

6.2 Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow product to reach sewage system or any water course.

6.3 Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling Avoid contact with skin and eyes. Do not ingest or inhale vapours or spray.

Information about fire - and explosion protection: Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles:

DO NOT contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE: Store product in original container only, away from other pesticides, fertilizers, food or feed.

Information about storage in one common storage facility: Store this product away from food or feed.

Further information about storage conditions: Protect from frost.

7.3 Specific end use(s) No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

· **Respiratory protection:** Not required.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

· **Body protection:**

Applicators and other handlers must wear:

- Long sleeved shirt and long pants
- Chemical resistant gloves
- Shoes plus socks

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

- **Form:** Liquid
- **Colour:** Dark amber
- **Odour:** Aromatic
- **Odour threshold:** Not determined.

· **pH-value:** 5.6

· **Change in condition**

· **Melting point/Melting range:** Undetermined.

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· Boiling point/Boiling range:	Undetermined.
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Ignition temperature:	
· Decomposition temperature:	Not determined.
· Self-igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
· Lower:	Not determined.
· Upper:	Not determined.
· Vapour pressure:	Not determined.
· Density at 20 °C (68 °F):	1.02 g/cm ³ (8.512 lbs/gal)
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
· water:	Emulsifiable.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
· Dynamic:	Not determined.
· Kinematic:	Not determined.
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity**
- **10.2 Chemical stability** Stable under normal conditions
 - **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
 - **Acute toxicity:**

· LD/LC50 values relevant for classification:		
Oral	LD50	5900 mg/kg (rat) (Male) 4100 mg/kg (rat) (Female)
Dermal	LD50	>2000 mg/kg (rabbit)
Inhalative	LC50/4 h	2.6 mg/l (rat)

- **Primary irritant effect:**
 - **on the skin:** Moderately Irritating

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- **on the eye:** Severe irritant
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version.
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

SECTION 12: Ecological information

- **12.1 Toxicity**
 - **Aquatic toxicity:**
This product contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.
TOXIC to non target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
TOXIC to aquatic organisms.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
 - **Additional ecological information:**
 - **General notes:** Not known to be hazardous to water.
- **12.5 Results of PBT and vPvB assessment**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
 - **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.
 - **Uncleaned packaging:**
 - **Recommendation:**
Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:
 1. Triple or pressure rinse the empty container. Add the rinsings to the spray mixture in the tank.
 2. Make the empty, rinsed container unsuitable for further use.

SECTION 14: Transport information

- **14.1 UN-Number**
- **TDG, DOT** Void
- **IMDG, IATA** UN3082

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· 14.2 UN proper shipping name

· TDG, DOT

Not Regulated

· IMDG

ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
LIQUID, N.O.S., MARINE POLLUTANT

· IATA

ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
LIQUID, N.O.S.

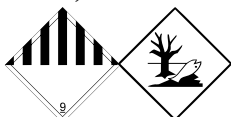
· 14.3 Transport hazard class(es)

· 14.3 TDG, DOT

· Class

Void

· IMDG, IATA



· Class

9 Miscellaneous dangerous substances and articles.

· Label

9

· 14.4 Packing group

· TDG, DOT

Void

· IMDG, IATA

III

· 14.5 Environmental hazards:

· Marine pollutant:

Yes

Symbol (fish and tree)

· Special marking (IATA):

Symbol (fish and tree)

· 14.6 Special precautions for user

Not applicable.

· EMS Number:

F-A,S-F

**· 14.7 Transport in bulk according to Annex II of
MARPOL73/78 and the IBC Code**

Not applicable.

· UN "Model Regulation":

Not regulated by US DOT, TDG

SECTION 15: Regulatory information

· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

No further relevant information available.

· 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

H227 Combustible liquid.

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H351 Suspected of causing cancer.

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R21/22 Harmful in contact with skin and if swallowed.

R22 Harmful if swallowed.

R36/38 Irritating to eyes and skin.

R40 Limited evidence of a carcinogenic effect.

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Department issuing MSDS:** Supply Chain

· **Contact:** sds@gowanco.com

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

: Flammable liquids, Hazard Category 4

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

Carc. 2: Carcinogenicity, Hazard Category 2

· **Sources** YUMA® GL is a registered trademark of Gowan Company, L.L.C.

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TECHNICAL MONOGRAPH n° 2, 7th Edition
Revised March 2017

Catalogue of pesticide formulation types and international coding system

Technical Monograph No: 2

Edition: March 2017

Introduction

The Catalogue of pesticide formulation types and international coding system provides guidance for appropriately assigning Formulation Types during development and registration of new products. In individual cases, more than one Formulation Type may be possible.

Code	Term	Definition
AE	Aerosol dispenser	A container-held formulation which is dispersed generally by a propellant as fine droplets or particles upon the actuation of a valve.
AL	Any other liquid	A liquid not yet designated by a specific code, to be applied undiluted.
AP	Any other powder	A powder not yet designated by a specific code, to be applied undiluted.
BR	Briquette	Solid block designed for controlled release of active ingredient into water.
CB	Bait concentrate	A solid or liquid intended for dilution before use as a bait.
CP	Contact powder	Rodenticidal or insecticidal formulation in powder form for direct application. Formerly known as tracking powder (TP).
CS	Capsule suspension	A stable suspension of capsules in a fluid, normally intended for dilution with water before use.
DC	Dispersible concentrate	A liquid homogeneous formulation to be applied as a solid dispersion after dilution in water. (Note: there are some formulations which have characteristics intermediate between DC and EC).
DP	Dustable powder	A free-flowing powder suitable for dusting.
DS	Powder for dry seed treatment	A powder for application in the dry state directly to the seed.
DT	Tablet for direct application	Formulation in the form of tablets to be applied individually and directly in the field, and/or bodies of water, without preparation of a spraying solution or dispersion.
EC	Emulsifiable concentrate	A liquid, homogeneous formulation to be applied as an emulsion after dilution in water.
EG	Emulsifiable granule	A granular formulation, which may contain water-insoluble formulants, to be applied as an oil-in-water emulsion of the active ingredient(s) after disintegration in water.
EO	Emulsion, water in oil	A fluid, heterogeneous formulation consisting of a solution of pesticide in water dispersed as fine globules in a continuous organic liquid phase.
EP	Emulsifiable powder	A powder formulation, which may contain water-insoluble formulants, to be applied as an oil-in-water emulsion of the active ingredient(s) after dispersion in water.

ES	Emulsion for seed treatment	A stable emulsion for application to the seed either directly or after dilution.
EW	Emulsion, oil in water	A fluid, heterogeneous formulation consisting of a solution of pesticide in an organic liquid dispersed as fine globules in a continuous water phase.
FS	Flowable concentrate for seed treatment	A stable suspension for application to the seed, either directly or after dilution.
FU	Smoke generator	A combustible formulation, generally solid, which upon ignition releases the active ingredient(s) in the form of smoke.
GA	Gas	A gas packed in pressure bottle or pressure tank.
GD	Gel for direct application	A gel like preparation to be applied undiluted.
GE	Gas generating product	A formulation which generates a gas by chemical reaction.
GL	Emulsifiable gel	A gelatinized formulation to be applied as an emulsion in water.
GR	Granule	A free-flowing solid formulation of a defined granule size range ready for use.
GS	Grease	Very viscous formulation based on oil or fat.
GW	Water soluble gel	A gelatinized formulation to be applied as an aqueous solution.
HN	Hot fogging concentrate	A formulation suitable for application by hot fogging equipment, either directly or after dilution.
KK	Combi-pack solid/liquid	A solid and a liquid formulation, separately contained within one outer pack, intended for simultaneous application in a tank mix.
KL	Combi-pack liquid/liquid	Two liquid formulations, separately contained within one outer pack, intended for simultaneous application in a tank mix.
KN	Cold fogging concentrate	A formulation suitable for application by cold fogging equipment, either directly or after dilution.
LB	Long-lasting storage bag	A slow- or controlled-release formulation in the form of a treated bag for storage, providing physical and chemical barriers, e.g. to pests
LN	Long-lasting insecticidal net	A slow- or controlled-release formulation in the form of netting, providing physical and chemical barriers to insects. LN refers to both bulk netting and ready-to-use products, for example mosquito nets.
LS	Solution for seed treatment	A clear to opalescent liquid to be applied to the seed either directly or as a solution of the active ingredient after dilution in water. The liquid may contain water-insoluble formulants.

MC	Mosquito coil	A coil which burns (smoulders) without producing a flame and releases the active ingredient into the local atmosphere as a vapour or smoke.
ME	Micro-emulsion	A clear to opalescent, oil and water containing liquid, to be applied directly or after dilution in water, when it may form a diluted micro-emulsion or a conventional emulsion.
MR	Matrix Release	A slow- or controlled-release formulation in the form of a polymer matrix providing long-lasting effects. It is intended to be applied directly.
OD	Oil dispersion	A stable suspension of active ingredient(s) in a water-immiscible fluid, which may contain other dissolved active ingredient(s), intended for dilution with water before use.
OF	Oil miscible flowable concentrate (oil miscible suspension)	A stable suspension of active ingredient(s) in a fluid intended for dilution in an organic liquid before use.
OL	Oil miscible liquid	A liquid, homogeneous formulation to be applied as a homogeneous liquid after dilution in an organic liquid.
OP	Oil dispersible powder	A powder formulation to be applied as a suspension after dispersion in an organic liquid.
PA	Paste	Water-based, film-forming composition.
PR	Plant rodlet	A small rodlet, usually a few centimeters in length and a few millimeters in diameter, containing an active ingredient.
RB	Bait (ready for use)	A formulation designed to attract and be eaten by the target pests.
SC	Suspension concentrate (= flowable concentrate)	A stable suspension of active ingredient(s) with water as the fluid, intended for dilution with water before use.
SD	Suspension concentrate for direct application	A stable suspension of active ingredient(s) in a fluid, which may contain other dissolved active ingredient(s), intended for direct application, to rice paddies, for example.
SE	Suspo-emulsion	A fluid, heterogeneous formulation consisting of a stable dispersion of active ingredient(s) in the form of solid particles and of water-non miscible fine globules in a continuous water phase.
SG	Water soluble granule	A formulation consisting of granules to be applied as a true solution of the active ingredient after dissolution in water, but which may contain insoluble inert ingredients.
SL	Soluble concentrate	A clear to opalescent liquid to be applied as a solution of the active ingredient after dilution in water. The liquid may contain water-insoluble formulants.

SO	Spreading oil	Formulation designed to form a surface layer on application to water.
SP	Water soluble powder	A powder formulation to be applied as a true solution of the active ingredient after dissolution in water, but which may contain insoluble inert ingredients.
ST	Water soluble tablet	Formulation in form of tablets to be used individually, to form a solution of the active ingredient after disintegration in water. The formulation may contain water-insoluble formulants.
SU	Ultra-low volume (ULV) suspension	A suspension ready for use through ULV equipment.
TB	Tablet	Pre-formed solids of uniform shape and dimensions, usually circular, with either flat or convex faces, the distance between faces being less than the diameter.
TC	Technical material	A material resulting from a manufacturing process comprising the active ingredient, together with associated impurities. This may contain small amounts of necessary additives.
TK	Technical concentrate	A material resulting from a manufacturing process comprising the active ingredient, together with associated impurities. This may contain small amounts of necessary additives and appropriate diluents.
UL	Ultra-low volume (ULV) liquid	A homogeneous liquid ready for use through ULV equipment.
VP	Vapour releasing product	A formulation containing one or more volatile active ingredients, the vapours of which are released into the air. Evaporation rate is normally controlled by using suitable formulations and/or dispensers.
WG	Water dispersible granules	A formulation consisting of granules to be applied after disintegration and dispersion in water.
WP	Wettable powder	A powder formulation to be applied as a suspension after dispersion in water.
WS	Water dispersible powder for slurry seed treatment	A powder to be dispersed at high concentration in water before application as a slurry to the seed.
WT	Water dispersible tablet	Formulation in the form of tablets to be used individually, to form a dispersion of the active ingredient after disintegration in water.
XX	Others	Temporary categorization of all other formulations not listed above.
ZC	A mixed formulation of CS and SC	A stable suspension of capsules and active ingredient(s) in fluid, normally intended for dilution with water before use.

ZE	A mixed formulation of CS and SE	A fluid, heterogeneous formulation consisting of a stable dispersion of active ingredient(s) in the form of capsules, solid particles, and fine globules in a continuous water phase, normally intended for dilution with water before use.
ZW	A mixed formulation of CS and EW	A fluid, heterogeneous formulation consisting of a stable dispersion of active ingredient(s) in the form of capsules and fine globules in a continuous water phase, normally intended for dilution with water before use.

For record keeping purposes, the suffix “SB” (soluble bag) should be added to the formulation code, if the material is packaged in a sealed water soluble bag (e.g. WP-SB).

Formulation codes which are no longer supported:

Code	Term	Definition
AB	Grain bait	Special form of bait. Refer to RB
BB	Block bait	Special form of bait. Refer to RB
CF	Capsule suspension for seed treatment	A stable suspension of capsules in a fluid to be applied to the seed, either directly or after dilution.
CG	Encapsulated granule	A granule with a protective or granule release-controlling coating. Refer to GR
CL	Contact liquid or gel	Rodenticidal or insecticidal formulation in the form of a liquid/gel for direct application, or after dilution in the case of gels.
ED	Electrochargeable liquid	Special liquid formulation for electrostatic (electrodynamic) spraying.
FD	Smoke tin	Special form of smoke generator. Refer to FU
FG	Fine granule	A granule in the particle size range from 300 to 2500 µm. Refer to GR
FK	Smoke candle	Special form of smoke generator. Refer to FU
FP	Smoke cartridge	Special form of smoke generator. Refer to FU
FR	Smoke rodlet	Special form of smoke generator. Refer to FU
FT	Smoke tablet	Special form of smoke generator. Refer to FU
FW	Smoke pellet	Special form of smoke generator. Refer to FU
GB	Granular bait	Special form of bait. Refer to RB
GF	Gel for Seed Treatment	A homogeneous gelatinous formulation to be applied directly to the seed.
GG	Macrogranule	A granule in the particle size range from 2000 to 6000 µm. Refer to GR

GP	Flo-dust	Very fine dustable powder for pneumatic application in greenhouses.
KP	Combi-pack solid/solid	Two solid formulations, separately contained within one outer pack, intended for simultaneous application in a tank mix.
LA	Lacquer	Solvent-based, film-forming composition.
LV	Liquid vaporizer	A liquid formulation in a cartridge/bottle, designed to fit a suitable heater unit, from which the formulation passes up a heated wick and evaporates into the local atmosphere.
MG	Microgranule	A granule in the particle size range from 100 to 600 µm. Refer to GR
MV	Vaporizing mats	A mat made from pulp, or other suitable inert materials, and impregnated with an active ingredient. The mat is intended for use in a heating unit designed to produce slow volatilisation of the active ingredient.
PB	Plate bait	Special form of bait. Refer to RB
PC	Gel or paste concentrate	A solid formulation to be applied as a gel or paste after dilution with water.
PO	Pour-on	Solution for pouring on the skin of animals in a high volume (normally more than 100 ml per animal).
PS	Seed coated with a pesticide	Application form. Not considered a formulation type.
SA	Spot-on	Solution for spot application on the skin of animals in a low volume (normally less than 100 ml per animal).
SB	Scrap bait	Special form of bait. Refer to RB
SS	Water soluble powder for seed treatment	A powder to be dissolved in water before application to the seed.
TP	Tracking powder	Discontinued term. Refer to CP

Zinc Chloride Solution

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SECTION 1: Identification

1.1. Product identifier

Product name : Zinc Chloride Solution
Other means of identification : Grades: 50%; 50% Ultra; 56%; 62.5%; 68.5%, 70.5%

1.2. Recommended use and restrictions on use

Manufacturing

1.3. Supplier

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115
T 800-356-7327

1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US/CAN Classification

Acute toxicity (oral) Category 4	H302
Skin corrosion/irritation Category 1B	H314
Specific target organ toxicity (single exposure) Category 3	H335
Hazardous to the aquatic environment - Acute Hazard Category 1	H400
Hazardous to the aquatic environment - Chronic Hazard Category 1	H410

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US/CAN labeling

Hazard pictograms :



Signal word :

Danger

Hazard statements :

H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements :

P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P321 - Specific treatment (see label)
P363 - Wash contaminated clothing before reuse
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.

Zinc Chloride Solution

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2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-CA)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-CAN classification	GHS-US classification
Zinc chloride	(CAS No) 7646-85-7	50 - 72	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Water	(CAS No) 7732-18-5	28 - 50	Not classified	Not classified

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove to fresh air immediately. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.
First-aid measures after skin contact	: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse and discard shoes.
First-aid measures after eye contact	: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.
First-aid measures after ingestion	: If swallowed, do not induce vomiting. Give large quantities of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	: Fumes, dust from dried-down product, or mist may cause injury to the respiratory tract. Severe exposure may cause lung damage.
Symptoms/injuries after skin contact	: Corrosive to the skin.
Symptoms/injuries after eye contact	: Causes eye damage
Symptoms/injuries after ingestion	: Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: As appropriate for combustibles in area.
Unsuitable extinguishing media	: None.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: May release zinc oxide fumes, zinc chloride fumes, and hydrogen chloride gas in a fire.
Explosion hazard	: None known.

5.3. Advice for firefighters

Firefighting instructions	: Keep personnel removed and upwind of fire. Cool tank/container with water spray.
Protection during firefighting	: Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Stop the flow of material, if this is without risk.
Methods for cleaning up	: Confine spill and soak up with absorbent. Place in an approved container and dispose in accordance with local, state and federal regulations.

Zinc Chloride Solution

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6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not get in eyes, on skin, on clothing. Avoid breathing fumes, dust from dried-down product, or mist. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep drums in upright position; do not roll drums on side. Keep containers closed. Store in a well ventilated area.

7.3. Specific end use(s)

Manufacturing

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Zinc chloride (7646-85-7)		
USA - ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³ (fume)
USA - ACGIH	ACGIH STEL (mg/m ³)	2 mg/m ³ (fume)
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³ (fume)
Canada (Quebec)	VEMP (mg/m ³)	1 mg/m ³ (fume)
Alberta	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
Alberta	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
British Columbia	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
British Columbia	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
Manitoba	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
Manitoba	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
New Brunswick	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
New Brunswick	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
New Foundland & Labrador	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
New Foundland & Labrador	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
Nova Scotia	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
Nova Scotia	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
Nunavut	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
Nunavut	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
Northwest Territories	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
Northwest Territories	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
Ontario	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
Ontario	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
Prince Edward Island	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
Prince Edward Island	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
Saskatchewan	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
Saskatchewan	OEL TWA (mg/m ³)	1 mg/m ³ (fume)
Yukon	OEL STEL (mg/m ³)	2 mg/m ³ (fume)
Yukon	OEL TWA (mg/m ³)	1 mg/m ³ (fume)

8.2. Exposure controls

Appropriate engineering controls : Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Hand protection : Use rubber gloves and apron for routine work. If considerable contact is likely, wear impervious (rubber) clothing or acid suit.

Eye protection : Use chemical splash goggles. A full-length face shield should be worn around galvanizing kettles.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

Zinc Chloride Solution

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear
Colour	: Water-white
Odour	: Odorless
Odour threshold	: No data available
pH	: 50% Grade: 2.01; 62.5% Grade: <1.0; 70° Bé Grade: <1.0; 72° Bé Grade: <1.0
Relative evaporation rate (butylacetate=1)	: 50% Grade: >1; 62.5% Grade: <1; 70° Bé Grade: <1; 72° Bé Grade: <1
Melting point	: No data available
Freezing point	: No data available
Boiling point	: 50% Grade: 120 °C (248 °F); 62.5% Grade: 134 °C (273 °F); 70° Bé Grade: 146 °C (295 °F); 72° Bé Grade: 157 °C (315 °F)
Flash point	: No data available
Self ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Specific gravity	: 50% Grade: 1.576; 62.5% Grade: 1.814; 70° Bé Grade: 1.933; 72° Bé Grade: 1.985
Solubility	: 100%
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

High temperatures

10.5. Incompatible materials

Incompatible with cyanides (may release toxic HCN gas) and sulfide salts (may release toxic H₂ gas).

10.6. Hazardous decomposition products

Not Determined

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Oral: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

ATE CA (oral)	500 mg/kg body weight
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Water (7732-18-5)

LD50 oral rat	> 90 ml/kg
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Zinc chloride (7646-85-7)

LD50 oral rat	1100 mg/kg
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Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Eye damage, category 1, implicit
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

Reproductive toxicity : Not classified

Tests in bacterial or mammalian cell cultures demonstrate mutagenic activity. Tests in some animals indicate that the compound may have embryotoxic activity.

Specific target organ toxicity – single exposure : May cause respiratory irritation.

The compound in either solid or solution form, is corrosive to the eyes and skin. Toxic effects described in animals from short exposure include corrosion of mucosal surfaces, liver effects, and kidney effects. Toxic effects in animals occurring only with inhalation exposures, are lower respiratory irritation with pulmonary edema.

Specific target organ toxicity – repeated exposure : Not classified

Human health effects of overexposure may initially include: eye irritation with discomfort, tearing, or blurring of vision; skin irritation with discomfort or rash; or irritation of the upper respiratory passages. Higher exposures may lead to these effects: skin burns or ulceration; eye irritation with discomfort, tearing, or blurring of vision; temporary lung irritation effects with cough, discomfort, difficulty breathing, or shortness of breath; possibly modest initial symptoms, followed in hours by severe shortness of breath, requiring prompt medical attention; or fatality from gross overexposure by fume inhalation or by significant ingestion. There are inconclusive or unverified reports of human sensitization. Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures.

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Aquatic acute	: Very toxic to aquatic life.
Aquatic chronic	: Very toxic to aquatic life with long lasting effects.

Zinc chloride (7646-85-7)

BCF fish 1	16000
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12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Zinc chloride (7646-85-7)

BCF fish 1	16000
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

UN-No. (TDG)	: UN1840
Packing group	: III - Minor Danger

Zinc Chloride Solution

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TDG Primary Hazard Classes : 8 - Class 8 - Corrosives
 Transport document description : UN1840 ZINC CHLORIDE SOLUTION, 8, III
 Proper Shipping Name (TDG) : ZINC CHLORIDE SOLUTION

Hazard labels (TDG) : 8 - Corrosive substances



Explosive Limit and Limited Quantity Index : 5 L
 Excepted quantities (TDG) : E1
 Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : 5 L
 Marine pollutant : Yes (IMDG only)



14.2. Transport information/DOT

DOT

DOT NA no. : UN1840
 UN-No.(DOT) : 1840
 Packing group (DOT) : III - Minor Danger
 Transport document description : UN1840 Zinc chloride, solution, 8, III
 Proper Shipping Name (DOT) : Zinc chloride, solution
 Contains Statement Field Selection (DOT) :
 Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136
 Division (DOT) : 8
 Hazard labels (DOT) : 8 - Corrosive



Dangerous for the environment : Yes
 Marine pollutant : Yes



DOT Special Provisions (49 CFR 172.102) : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)

TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

DOT Packaging Exceptions (49 CFR 173.xxx) : 154
 DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
 DOT Packaging Bulk (49 CFR 173.xxx) : 241
 DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L
 DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

Other information : No supplementary information available.

Zinc Chloride Solution

Safety Data Sheet

14.3. Air and sea transport

IMDG

UN-No. (IMDG)	: 1840
Proper Shipping Name (IMDG)	: ZINC CHLORIDE SOLUTION
Transport document description (IMDG)	: UN 1840 ZINC CHLORIDE SOLUTION, 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
Class (IMDG)	: 8 - Corrosive substances
Packing group (IMDG)	: III - substances presenting low danger

IATA

UN-No. (IATA)	: 1840
Proper Shipping Name (IATA)	: Zinc chloride solution
Transport document description (IATA)	: UN 1840 Zinc chloride solution, 8, III, ENVIRONMENTALLY HAZARDOUS
Class (IATA)	: 8 - Corrosives
Packing group (IATA)	: III - Minor Danger

SECTION 15: Regulatory information

15.1. Canada National regulations

Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List)

Zinc chloride (7646-85-7)

Listed on the Canadian DSL (Domestic Substances List)

15.2. US Federal regulations

Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Zinc chloride (7646-85-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. US State regulations

Zinc chloride (7646-85-7)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product



Acapela™ Fungicide

GROUP	11	FUNGICIDE
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SUSPENSION CONCENTRATE

FOR USE ON CANOLA, DRY LEGUMES, CEREALS, CORN, SOYBEANS, POTATOES, SUNFLOWERS, ONIONS, SUGARBEETS, ALMONDS, ALFALFA, GRASS GROWN FOR SEED AND PEANUTS

COMMERCIAL

READ THE LABEL AND THIS BOOKLET BEFORE USING

ACTIVE INGREDIENT: Picoxystrobin 250 g/L

Contains 1,2-benzisothiazolin-3-one at 0.017% as a preservative

REGISTRATION NO. 30470 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 1L – 2,500 LITRES

Production Agriscience Canada Company
P.O. Box 730
7398 Queen's Line
Chatham, Ontario
N7M 5L1
519-352-6350

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

- Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab or cockpit.
- Follow manufacturer's instructions for cleaning/maintaining personal protective equipment (PPE). If no such instructions for washables are available, use detergent and hot water. Keep and wash PPE separately from other laundry.
- Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- **DO NOT** enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
- Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
- See the Aerial Application Label Instructions section of this label for additional precautions specific to aerial application.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

For medical emergencies call the Production Agriscience Canada Company emergency line at 1-800-667-3852 (24 hours).

TOXICOLOGICAL INFORMATION: Treat symptomatically.

ENVIRONMENTAL HAZARDS

- Toxic to earthworms. Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland. Toxic to aquatic organisms and non-target terrestrial plants.
- Observe buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.
- **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

STORAGE

Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in or around the home. Keep container closed. To prevent contamination, store this product away from food or feed.

DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Acapela™ Fungicide is a broad-spectrum fungicide, recommended for control or suppression of foliar and soil-borne plant diseases and has curative and locally systemic activity. Acapela Fungicide must be applied in a regularly scheduled protective spray program in rotation with other fungicides. See directions below for specific crop/disease recommendations.

Acapela Fungicide can be applied with ground or air, except as otherwise directed, using sufficient water to obtain thorough coverage of plants. Minimum aerial application volume is 50 L/ha and minimum ground application volume is 110 L/ha.

For all disease claims listed below, Acapela Fungicide will provide either control or suppression, as indicated, when applied as directed.

DIRECTIONS FOR USE

CANOLA & FLAX

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Canola	Sclerotinia stem rot (white mould – <i>Sclerotinia sclerotiorum</i>)	0.80-1.2 L/ha	Apply at 20-50% bloom prior to disease development to control white mould. Use the higher rate or shorter interval when disease pressure is high. Under high disease pressure, make a second application of another fungicide, from a different fungicide group, 7-14 days later. A second application of Acapela Fungicide can only be carried out if both applications are at the lowest rate and if sprays are not sequential.

Flax	Pasmo (<i>Septoria linicola</i> ; <i>Mycosphaerella linicola</i>)	0.6-0.88 L/ha	Begin application prior to disease development or 7-10 days after flower initiation (approx. 20% bloom) and continue on a 7 to 14 day interval. Use higher rate and shorter interval when disease pressure is high.
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RESTRICTIONS AND PRECAUTIONS: Canola & Flax

- Do not make sequential applications of Acapela Fungicide or any other Group 11 fungicide before switching to a fungicide with a different mode of action registered for the same use.
- Maximum seasonal use rate is 1.75 L/ha.
- Minimum time (PHI) between application and harvest is 28 days.
- Use the high rate and shorter interval under heavy disease pressure.

DRY LEGUMES

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Dry Legumes (dry shelled beans and peas) chickpea (garbanzo); lentil; guar; lablab bean; dry broad bean (fava bean); pigeon pea; (<i>Lupinus</i>) grain lupin, sweet lupin, white lupin, white sweet lupin; (<i>Phaseolus</i>) field bean, kidney bean, lima bean, navy bean, pinto bean, tepary bean, (<i>Vigna</i>) adzuki bean, blackeyed pea,	Suppression of Mycosphaerella blight (<i>Mycosphaerella pinodes</i>) on field pea Asian Soybean rust (<i>Phakospora pachyrhizi</i>) Anthracnose (<i>Colletotrichum truncatum</i>) in lentils Ascochyta blight (<i>Ascochyta lentis</i>) in lentils Anthracnose (<i>Colletotrichum lindemuthianum</i>) in dry beans	0.6 to 0.88 L/ha	Begin applications prior to disease development and continue on a 7- to 14-day interval. Use higher rate and shorter interval when disease pressure is high.

catjang, cowpea, crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, (<i>Pisum</i>) field pea	Suppression of Sclerotinia rot (white mould – <i>Sclerotinia sclerotiorum</i>)	0.88 L/ha	For white mould: make initial preventive application at beginning bloom and follow with 2nd application 7-10 days later at full bloom
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RESTRICTIONS AND PRECAUTIONS: Dry Legumes

- Make no more than 1 application of Acapela Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- Maximum total seasonal use rate is 1.75 L/ha.
- Minimum time (PHI) between application and harvest of seed is 14 days, vines and hay is 0 days.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.

CEREAL GRAINS

Early Application			
Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Wheat (<i>Triticum</i> spp.)	Tan spot (<i>Pyrenophora tritici-repentis</i>) on wheat	0.29 L/ha suppression	Begin applications prior to disease development. For early application, apply Acapela Fungicide at Zadoks 12-36.
Barley (<i>Hordeum</i> spp.)	Septoria leaf blotch (<i>Septoria tritici</i>) on wheat, rye, barley and triticale		
Oats (<i>Avena</i> spp.)			
Rye (<i>Secale cereale</i>)	Net Blotch (<i>Pyrenophora teres</i>) on barley		
Triticale (<i>Triticum-Secale</i> hybrids),			
	Scald (<i>Rhynchosporium secalis</i>) on barley and rye	0.22 L/ha suppression 0.29 L/ha control	
	Leaf rust (<i>Puccinia recondita</i>) on wheat, rye and triticale	0.22 – 0.29 L/ha	

Later Application			
Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Cereals grains: Wheat (<i>Triticum spp.</i>) Barley (<i>Hordeum spp.</i>), Oats (<i>Avena spp.</i>), Rye (<i>Secale cereale</i>), Triticale (<i>Triticum-Secale</i> hybrids)	Leaf rust (<i>Puccinia recondita</i>) on wheat, rye and triticale	0.44 – 0.88 L/ha	Begin applications prior to disease development and continue on a 7- to 14-day interval. Use the higher rate and shorter interval when disease pressure is high.
	Stripe rust (<i>Puccinia striiformis</i>) on cereal grains		
	Septoria leaf blotch (<i>Septoria tritici</i>) on wheat, rye, barley and triticale		To optimize yields in cereals, it is important to protect the flag leaf from foliar diseases. For optimizing yield and flag leaf disease control, apply Acapela Fungicide at Feeke's 9, 'flag leaf out' or Zadoks 39-41. Do not apply after flowering (Feekes 10.5 or Zadoks 59)
	Powdery mildew (<i>Erysiphe graminis</i>) on cereal grains		
	Tan spot (<i>Pyrenophora tritici-repentis</i>) on wheat		
	Net blotch (<i>Pyrenophora teres</i>) on barley		
	Scald (<i>Rhynchosporium secalis</i>) on barley and rye		
Crown Rust (<i>Puccinia coronata f.sp. Avenae</i>) on oats			

RESTRICTIONS AND PRECAUTIONS: Cereal grains

- Make no more than 2 sequential applications of a strobilurin fungicide, such as Acapala Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum seasonal use rate is 2.64 L/ha.
- Do not apply after flowering (Feekes 10.5.1 or Zadoks 60).
- Minimum time (PHI) between application and harvest of grain is 45 days, and for forage is 7 days and for hay is 14 days.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.
- If wheat forage will be harvested, make only one application.

CORN

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Corn, field corn, sweet corn, seed popcorn	Northern corn leaf blight (<i>Setosphaeria turcica</i> , <i>Exserohilum turcicum</i>)	0.53 to 0.8 L/ha	Begin applications prior to disease development and continue on a 7- to 14-day interval. Use higher rate and shorter interval when disease pressure is high.

RESTRICTIONS AND PRECAUTIONS: Corn

- Make no more than 2 sequential applications of Acapala Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum seasonal use rate for field, seed or popcorn is 2.64 L/ha and 3.5 L/ha for sweet corn.
- Minimum time (PHI) between application and grain or ear harvest is 7 days.
- Corn may be used for grazing or forage within 0 days after the last application.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.

SOYBEANS

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Soybean	Asian Soybean Rust (<i>Phakospora pachyrhizi</i>)	0.44 to 0.88 L/ha	Begin applications prior to disease development and continue on a 7 to 14-day interval. Use higher rate and shorter interval when disease pressure is high.
	Brown Spot (<i>Septoria glycines</i>)		
	Frogeye leafspot (<i>Cercospora sojina</i>)		
	Suppression of Sclerotinia stem rot (<i>Sclerotinia sclerotiorum</i>)	0.88 L/ha	For white mould: make initial preventative application at 100% bloom (1 flower blooming on all plants) and follow with 2nd application 7-10 days later at full bloom.

RESTRICTIONS AND PRECAUTIONS: Soybean

- Make no more than 2 sequential applications of Acapala Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum total seasonal use rate is 2.64 L/ha.
- Minimum time (PHI) between application and harvest is 14 days.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.
- Use of adjuvants in extreme heat may lead to leaf puckering or other symptoms in soybeans.
- If soybean forage and hay will be harvested, make only one application.

ALFALFA

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Alfalfa	<p>Common leaf spot (<i>Pseudopeziza medicaginis</i>)</p> <p>Stemphylium leafspot (<i>Stemphylium botryosum</i>)</p>	0.44-0.88 L/ha	<p>Begin applications in the spring at green-up and once 1-3 new leaves have grown after each cutting.</p> <p>Initiate applications prior to disease development and no later than 14-days prior to cutting. Use higher rate and shorter interval when disease pressure is high.</p>

RESTRICTIONS AND PRECAUTIONS: Alfalfa

- Make no more than 2 sequential applications of Acapela Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum seasonal use rate is 2.63 L/ha.
- **Feeding/Grazing Restriction: DO NOT** harvest alfalfa seeds, forage or cut hay within 14 days of application.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.

SUNFLOWER

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Sunflower	<p>Alternaria leaf spot (<i>Alternaria helianthi</i>)</p> <p>Stem Canker (<i>Diaporthe helianthi</i>)</p> <p>Black Stem (<i>Leptosphaeria lindquistii</i>)</p>	0.6-0.88 L/ha	<p>Begin applications prior to disease development and continue on a 7 to 10-day interval. Use higher rate and shorter interval when disease pressure is high.</p>
	<p>Suppression of Sclerotinia head & stem rot (<i>Sclerotinia sclerotiorum</i>)</p>	0.8- 1 L/ha	

RESTRICTIONS AND PRECAUTIONS: Sunflower

- Make no more than 2 sequential applications of Acapela Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum total seasonal use rate is 2.63 L/ha.
- Minimum time (PHI) between application and harvest is 7 days.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.

POTATOES

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Potato	Early blight (<i>Alternaria solani</i>)	0.6-1 L/ha	Begin applications prior to disease development and continue on a 7 to 10-day interval. Use higher rate and shorter interval when disease pressure is high.
	White mould (<i>Sclerotinia sclerotiorum</i>)		
	Late blight (<i>Phytophthora infestans</i>)	0.44-1 L/ha	

RESTRICTIONS AND PRECAUTIONS: Potatoes

- Make no more than 2 sequential applications of Acapela Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum total seasonal use rate is 2.63 L/ha.
- Minimum time (PHI) between application and harvest is 3 days.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.

BULB VEGETABLES

Do not apply by air.

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Garlic, bulb; onion, bulb; onion, Chinese, bulb; onion, fresh; onion, green; onion, macrostem; onion, pearl; onion, potato, bulb; onion, tree, tops; onion, Welsh, tops; shallot, bulb; shallot, fresh leaves; cultivars, varieties, and/or hybrids of these.	Purple blotch (<i>Alternaria porri</i>)	0.44-0.88 L/ha	Begin applications prior to disease development and continue on a 7- to 14-day interval. Use higher rate and shorter interval when disease pressure is high.
	Botrytis neck rot (<i>Botrytis alli</i>)		
	Suppression of Botrytis blight (<i>Botrytis squamosa</i>)	0.6-0.88 L/ha	

RESTRICTIONS AND PRECAUTIONS: Bulb Vegetables

- Make no more than 2 sequential applications of Acapela Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum seasonal use rate is 2.63 L/ha.
- Minimum time (PHI) between application and harvest is 0 days.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.

SUGAR BEET

Do not apply by air.

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Sugar beet	Leaf Spot (<i>Cercospora beticola</i>) Powdery Mildew (<i>Erysiphe betae</i>) Suppression of Rust (<i>Uromyces betae</i>)	0.6-1 L/ha	Begin applications prior to row closure and prior to disease development and continue on a 7 to 14 day interval. Use higher rate and shorter interval when disease pressure is high.
	Suppression of Rhizoctonia root and crown rot (<i>Rhizoctonia solani</i>)	12.2 ml per 100 m of row	Apply as a banded foliar application at the 4 to 6-leaf stage.

RESTRICTIONS AND PRECAUTIONS: Sugar beet

- Make no more than 2 sequential applications of Acapela Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum seasonal use rate is 2.63 L/ha.
- **Feeding/Grazing Restriction: DO NOT** graze or harvest forage within 3 days of application.
- Minimum time (PHI) between application and harvest is 3 days.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.

ALMOND

Do not apply by air.

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Almond	Coryneum Blight/Shothole (<i>Wilsonomyces carpophilus</i>) brown rot, blossom blight (<i>Monilinia laxa</i>)	0.6-0.88 L/ha	Begin applications prior to disease development and continue on a 7 to 14-day interval. Use higher rate and shorter interval when disease pressure is high.

RESTRICTIONS AND PRECAUTIONS: Almond

- Make no more than 2 sequential applications of Acapela Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum seasonal use rate is 2.63 L/ha.
- Do not apply to trees less than 2-years in the field.
- Minimum time (PHI) between application and harvest is 7 days
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.

GRASS, GROWN FOR SEED

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Grass grown for seed	Yellow Rust (<i>Puccinia striiformis</i> f. sp. <i>poae</i>)	0.44-0.88 L/ha	Begin applications prior to disease development and continue on a 7 to 14-day interval. Use higher rate and shorter interval when disease pressure is high.

RESTRICTIONS AND PRECAUTIONS: Grass grown for seed

- Make no more than 2 sequential applications of Acapela Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum seasonal use rate is 2.63 L/ha.
- **Feeding/Grazing Restriction:** The harvest of forage is permitted immediately after a single application. The cutting of hay is permitted immediately following multiple applications.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.

PEANUTS

Do not apply by air.

Crop	Disease	Application Rate	SPECIFIC DIRECTIONS
Peanuts	Early leaf spot (<i>Cercospora arachidicola</i>)	0.44-0.88 L/ha	Begin applications prior to disease development and continue on a 7 to 14-day interval. Use higher rate and shorter interval when disease pressure is high.
	Late leaf spot (<i>Cercosporidium personatum</i>)		

RESTRICTIONS AND PRECAUTIONS: Peanuts

- Make no more than 2 sequential applications of Acapela Fungicide before switching to a fungicide with a different mode of action registered for the same use.
- For resistance management, refer to the Fungicide Resistance Action Committee (FRAC) guidelines for the latest recommendations on fungicide spray applications and tank mixes (<http://www.frac.info/home>).
- Maximum seasonal use rate is 2.63 L/ha.
- **Feeding/Grazing Restriction: DO NOT** cut peanut hay within 7 days of application.
- For any of the diseases listed above, use the high rate and shorter interval under heavy disease pressure.

CROP ROTATION

Treated areas may be replanted immediately after harvest with any crop appearing on this label. All other crops not on the label may be planted after 10 months following the last application of picoxystrobin.

APPLICATION INFORMATION

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

Airblast application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

Mixing Instructions

1. Shake well before use.
2. Fill clean spray tank 1/4 - 1/2 full of water.
3. While agitating, add the required amount of Acapela Fungicide, continuing agitation until the product is completely dispersed.
4. Continue filling the tank with agitation.

Mix thoroughly to fully disperse the fungicide; once dispersed continued agitation is required. Use mechanical or hydraulic means; do not use air agitation.

SPRAYER CLEANUP

Prior to application, start with clean, well maintained application equipment. Immediately following application, thoroughly clean all spray equipment to reduce the risk of forming hardened deposits which might become difficult to remove.

Drain spray equipment. Thoroughly rinse sprayer and flush hoses, boom and nozzles with clean water. Clean all other associated application equipment. Take all necessary safety precautions when cleaning equipment. Do not clean near wells, water sources or desirable vegetation. Dispose of waste rinse water in accordance with local regulations.

AERIAL APPLICATION INSTRUCTIONS

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Reduce drift caused by turbulent wingtip vortices. Nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Apply only by fixed-wing or rotary aircraft equipment, which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions for Aerial Application

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the **“National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides”**.

Operator Precautions for Aerial Application

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

During mixing, loading, clean-up and repair the field crew and the mixer/loaders must wear a long-sleeved shirt, long pants, chemical resistant gloves and shoes plus socks. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label. All personnel on the job site must wash hands and face thoroughly before eating and drinking.

Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions for Aerial Application

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Apply the recommended rate in a minimum spray volume of 50 litres per hectare.

BUFFER ZONES

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:				
		Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial Habitat
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Dry legumes, canola, flax	1	1	1	1	0
	Barley, oats, rye, triticale, wheat, soybeans, sweet corn, field corn, popcorn	2	1	2	1	1
	Sunflower, Potatoes, sugar beet	2	1	2	1	1

Airblast	Almond	Early growth stage	25	4	25	15	1
		Late growth stage	15	2	15	5	1
Aerial	Dry legumes, flax	Fixed wing	20	1	15	10	0
		Rotary wing	15	1	15	10	0
	Barley, oats, rye, triticale, wheat, soybean	Fixed wing	30	1	25	10	1
		Rotary wing	25	1	25	10	2
	Field corn, seed corn, popcorn	Fixed wing	25	1	25	10	1
		Rotary wing	20	1	20	10	1
	Sweet corn	Fixed wing	35	1	35	15	2
		Rotary wing	30	1	30	10	2
	Canola	Fixed wing	20	1	20	10	0
		Rotary wing	15	1	15	10	0
	Sunflower, potatoes	Fixed wing	35	1	30	10	10
		Rotary wing	25	1	25	10	10

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

TANK MIXING

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Production Agriscience Canada Company at 1-800-667-3852 for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the

use of tank mixes that do not appear on this label or that are not specifically recommended by Production Agriscience Canada Company.
 When applying as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

TRAVALLAS HERBICIDE + ACAPELA FUNGICIDE	
Crop (s): Spring wheat (including durum) and spring barley	
Timing: Post-emergent application from the 2-leaf stage to the flag leaf (shot blade) stage of the crop, prior to head emergence, but before the crop canopy will prevent thorough coverage of target weeds. Apply prior to disease development. Do not apply after head has emerged.	
TANK MIX COMPONENTS AND APPLICATION RATES (Ground and Aerial)	
Travallas Herbicide	0.5 L/ha
Acapala Fungicide	0.44-0.88 L/ha Use the high rate under heavy disease pressure.
WEEDS AND DISEASES CONTROLLED	
Broadleaf weeds controlled or suppressed by Travallas Herbicide alone, as well as cereal leaf diseases controlled or suppressed by Acapala Fungicide. Consult the Acapela Fungicide label for additional application instructions and use precautions.	

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Acapala Fungicide contains a Group 11 Fungicide. Any fungal population may contain individuals naturally resistant to Acapela Fungicide and other group 11 Fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance:

- ◆ Where possible, rotate the use of Acapela Fungicide or other Group 11 fungicides with different groups that control the same pathogens.
- ◆ Use tank mixtures with fungicides from a different group that is effective on the target pathogen when such use is permitted
- ◆ Fungicide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- ◆ Where possible, make use of predictive disease models to effectively time fungicide applications.
- ◆ Monitor treated fungal populations for resistance development. Notify Production Agriscience Canada Company if reduced sensitivity of the pathogen to Acapela Fungicide is suspected.
- ◆ If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, if available.
- ◆ Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- ◆ For further information and to report suspected resistance, contact Production Agriscience Canada Company representatives at 1-800-667-3852.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

TMTrademarks of Dow AgroSciences, DuPont or Pioneer and their affiliated companies or respective owners.

All other products mentioned are trademarks of their respective companies.

031519

Label Code: CN-30470-002-E

Replaces: CN-30470-001-E

Specimen Label Notes

Added crop and pests

ACAPELA™ Fungicide

Version 3.0

Issue Date : 04/05/2019 Ref. 130000028780
Revision Date : 04/01/2019

This SDS adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : ACAPELA™ Fungicide
 Tradename/Synonym : B12329307
 DPX-YT669 250SC

SDS Number : 130000028780

Product Use : Fungicide
 Manufacturer : Production Agriscience Canada Company
 P.O. Box 730, 7398 Queen's Line
 Chatham, Ontario
 N7M 5L1
 Canada

Product Information : 1-800-667-3852
 Medical Emergency : 1-800-441-3637 (24 hours)

SECTION 2. HAZARDS IDENTIFICATION

Potential Health Effects

Eyes

Picoxystrobin : May cause eye irritation.
 May cause: Tearing, redness, or discomfort.

Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
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Picoxystrobin	117428-22-5	22.5 %
Other Ingredients		77.5 %

SECTION 4. FIRST AID MEASURES

- Skin contact : Take off all contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- Eye contact : Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
- Inhalation : Move to fresh air. Artificial respiration and/or oxygen may be necessary. Call a poison control center or doctor for treatment advice.
- Ingestion : Call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Do not give anything by mouth to an unconscious person.
- General advice : Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

SECTION 5. FIREFIGHTING MEASURES

- Flammable Properties
- Flash point : does not flash
- Ignition temperature : 460 °C (860 °F)
- Suitable extinguishing media : Water spray, Foam, Dry chemical, Carbon dioxide (CO2)
- Unsuitable extinguishing media : High volume water jet, (contamination risk)

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Firefighting Instructions : In the event of fire, wear self-contained breathing apparatus. Wear full protective equipment.
(on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers/tanks with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel) : Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Use personal protective equipment. Wear suitable protective equipment.

Spill Cleanup : Soak up with sawdust, sand, oil dry or other absorbent material. Dispose of in an approved container.

Accidental Release Measures : Prevent material from entering sewers, waterways, or low areas. Dispose of in accordance with local regulations.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel) : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/PPE immediately if material gets inside. Wash thoroughly and put on clean clothing. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Handling (Physical Aspects) : Keep away from heat and sources of ignition.

Storage : Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in original container. Keep out of the reach of children.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls : Ensure adequate ventilation, especially in confined areas.

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Personal protective equipment

- Respiratory protection : See skin and body protection
- Hand protection : Additional protection: See skin and body protection
- Eye protection : Wear protective eyewear to prevent contact with this substance.
- Skin and body protection : Mixers, loaders, applicators and other handlers must wear:
Long sleeved shirt and long pants
Shoes plus socks
Chemical resistant gloves made of any waterproof material
Personal protective equipment required for early entry:
Coveralls
Shoes plus socks
Chemical resistant gloves made of any waterproof material
- Protective measures : Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.

Exposure Guidelines

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Issue Date : 04/05/2019 Ref. 130000028780
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Exposure Limit Values

None established.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form : liquid
Color : off-white
Odor : not significant
pH : 6.1 - 8.4
Boiling point : Not available for this mixture.
Oxidizing Substance : The product is not oxidizing.
Density : 1.11 g/cm³ at 21 °C (70 °F)
Bulk density : 8.9 - 9.5 lb/gal
Water solubility : miscible
Viscosity : 80 mPa.s at 25 °C (77 °F)

SECTION 10. STABILITY AND REACTIVITY

Stability : Stable at normal temperatures and storage conditions.
Conditions to avoid : Temperature <= -5 °C (<= 23 °F)
To avoid thermal decomposition, do not overheat. Protect from frost.
Incompatibility : No materials to be especially mentioned.
Hazardous reactions : Hazardous polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

ACAPELA™ Fungicide
Inhalation 4 h LC50 : > 5.3 mg/l , Rat
Dermal LD50 : > 2,000 mg/kg , Rat
Oral LD50 : 5,000 mg/kg , Rat
Skin irritation : No skin irritation, Rabbit

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Minimal effects that do not meet the threshold for classification.

Eye irritation : No eye irritation, Rabbit
Minimal effects that do not meet the threshold for classification.

Sensitisation : Did not cause sensitisation on laboratory animals., Guinea pig
Minimal effects that do not meet the threshold for classification.

Picoxystrobin
Repeated dose toxicity : The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Oral - feed
Mouse
28 d
No toxicologically significant effects were found.

Dermal
Rat
28 d
No toxicologically significant effects were found.

Oral
Mouse
90 d
Reduced body weight gain, Increased liver weight

Oral - feed
Rat
90 d
Reduced body weight gain, Increased liver weight, No effect to neurotoxicity.

Oral
Dog
1 yr
Reduced body weight gain

Oral
Mouse
18 Months
Reduced body weight gain, Increased liver weight, Gastrointestinal

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effects

Carcinogenicity : Not classifiable as a human carcinogen.
Overall weight of evidence indicates that the substance is not carcinogenic.

Reproductive toxicity : No toxicity to reproduction

Teratogenicity : Animal testing showed no developmental toxicity.

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

ACAPELA™ Fungicide

96 h LC50 : Oncorhynchus mykiss (rainbow trout) 0.24 mg/l
72 h ErC50 : Pseudokirchneriella subcapitata (green algae) 1.2 mg/l
48 h EC50 : Daphnia magna (Water flea) 0.086 mg/l

Picoxystrobin

21 d : NOEC Daphnia magna (Water flea) 0.008 mg/l

Environmental Fate

Picoxystrobin

Bioaccumulation : Does not bioaccumulate.

Additional ecological information : Environmental Hazards: For Terrestrial Uses: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal : Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container disposal: : Container Refilling and Disposal:
Refer to the product label for instructions.

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Do not transport if this container is damaged or leaking.

In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

SECTION 14. TRANSPORT INFORMATION

IATA_C	UN number	: 3082
	Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (Picoxystrobin)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
IMDG	UN number	: 3082
	Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Picoxystrobin)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
	Marine pollutant	: yes (Picoxystrobin)

Not regulated as a hazardous material by TDG.

SECTION 15. REGULATORY INFORMATION

PCP Registration # : 30470
Remarks : Regulated under the Pest Control Products Act - WHMIS exempt.
No substances are subject to a Significant New Activity Notification.

SECTION 16. OTHER INFORMATION

MSDS preparation date : 04/01/2019

ACAPELA™ Fungicide

Version 3.0

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(TM) Trademark of E.I. du Pont de Nemours and Company.

Contact person : Production Agriscience Canada Company, Chatham, Ontario, N7M 5L1

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

2020-03-26
2020-0479

GROUP	22	HERBICIDE
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ADVANTAGE DIQUAT 240

HERBICIDE

Solution

AGRICULTURAL

For Desiccation of Pulse, Oilseed and Legume Forage Seed Crops, Weed Control in Vegetable and Field Crops, Control of Corn Spurry in Oats and Weed Control in Non- crop Land (rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks).

ACTIVE INGREDIENT:

Diquat, present as diquat dibromide.....240 g/L

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

WARNING



POISON

EYE AND SKIN IRRITANT

REGISTRATION NO. 33731
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **10 L to Bulk**

Advantage Crop Protection Inc.
601-402 21st Street East
Saskatoon, Saskatchewan
Canada
S7K 0C3

Product Information: 1-888-931-2530

WARNING!
***HARMFUL OR FATAL IF SWALLOWED.**
HARMFUL IF INHALED, AVOID INHALING/BREATHING DUST, SPRAYS, ETC.
***CAUSES SUBSTANTIAL EYE INJURY AND SKIN IRRITATION.**
***DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.**
***NEVER TRANSFER TO OTHER CONTAINERS.**
*** KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, **IMMEDIATELY** hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If swallowed, give adsorbent suspension, for example either activated charcoal (100 g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄, Na₂SO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column.

If in eyes, treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

PRECAUTIONS

EXCESSIVE EXPOSURE TO DIQUAT MAY CAUSE A HEALTH HAZARD. FOLLOWING THE DIRECTIONS AND PRECAUTIONS WILL REDUCE EXPOSURE.

DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical-resistant footwear and a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides during mixing, loading, application, clean-up and repair. Chemical-resistant headgear must be worn for overhead applications. Gloves are not required during application within a closed cab or cockpit. Most exposure to pesticides is by absorption through skin, especially from concentrated material handled at the time of mixing and loading. Rolling down the sleeve end of the glove will prevent drips of liquid from running down the glove onto your arm.

Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY. Launder contaminated clothing prior to reuse and separate from household laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Do not eat, drink, handle or use tobacco, or apply cosmetics in areas where there is potential for exposure to this product. Users should wash hands and face before eating, drinking, chewing gum, handling tobacco or using the toilet. Store and wash all protective clothing separately from household laundry.

Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours for all agricultural uses. For all other terrestrial uses, DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

STORE IN ORIGINAL CONTAINER tightly closed in a safe place away from children.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Advantage Crop Protection Inc. Canada, Inc. at 1-888-931-2530

ENVIRONMENTAL PRECAUTIONS

ANY DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH.

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid applications to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative buffer strip between the treated area and the edge of the water body.

STORAGE

Store in original container, tightly closed, in a safe place away from children.

Store above 0°C. If crystallization occurs because of storage below this, warm to room temperature and agitate gently until reconstituted.

To prevent contamination store this product away from food or feed.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-613-966-6666***

ADVANTAGE DIQUAT 240

HERBICIDE

Solution

AGRICULTURAL

For Desiccation of Pulse, Oilseed and Legume Forage Seed Crops, Weed Control in Vegetable and Field Crops, Control of Corn Spurry in Oats and Weed Control in Non- crop Land (rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks).

ACTIVE INGREDIENT:

Diquat, present as diquat dibromide.....240 g/L

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

WARNING



POISON

EYE AND SKIN IRRITANT

REGISTRATION NO. 33731
PEST CONTROL PRODUCTS ACT

Registrant:

Advantage Crop Protection Inc.

601-402 21st Street East

Saskatoon, Saskatchewan

Canada

S7K 0C3

Product Information: 1 888-931-2530

WARNING!
***HARMFUL OR FATAL IF SWALLOWED.**
HARMFUL IF INHALED, AVOID INHALING/BREATHING DUST, SPRAYS, ETC.
***CAUSES SUBSTANTIAL EYE INJURY AND SKIN IRRITATION.**
***DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.**
***NEVER TRANSFER TO OTHER CONTAINERS.**
*** KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, **IMMEDIATELY** hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If swallowed, give adsorbent suspension, for example either activated charcoal (100 g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄, Na₂SO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column.

If in eyes, treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

PRECAUTIONS

EXCESSIVE EXPOSURE TO DIQUAT MAY CAUSE A HEALTH HAZARD. FOLLOWING THE DIRECTIONS AND PRECAUTIONS WILL REDUCE EXPOSURE.

DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical-resistant footwear and a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides during mixing, loading, application, clean-up and repair. Chemical-resistant headgear must be worn for overhead applications. Gloves are not required during application within a closed cab or cockpit. Most exposure to pesticides is by absorption through skin, especially from concentrated material handled at the time of mixing and loading. Rolling down the sleeve end of the glove will prevent drips of liquid from running down the glove onto your arm.

Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY. Launder contaminated clothing prior to reuse and separate from household laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Do not eat, drink, handle or use tobacco, or apply cosmetics in areas where there is potential for exposure to this product. Users should wash hands and face before eating, drinking, chewing gum, handling tobacco or using the toilet. Store and wash all protective clothing separately from household laundry.

Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours for all agricultural uses. For all other terrestrial uses, DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

STORE IN ORIGINAL CONTAINER tightly closed in a safe place away from children.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Advantage Crop Protection Inc. Canada, Inc. at 1-888-931-2530..

ENVIRONMENTAL PRECAUTIONS

ANY DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH.

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid applications to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative buffer strip between the treated area and the edge of the water body.

STORAGE

Store in original container, tightly closed, in a safe place away from children.

Store above 0 °C. If crystallization occurs because of storage below this, warm to room temperature and agitate gently until reconstituted.

To prevent contamination store this product away from food or feed.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-613-966-6666***

PRODUCT INFORMATION

ADVANTAGE DIQUAT 240™ is a non-volatile, fast acting herbicide. It is inactivated on contact with the soil and therefore, has no residual effect. The herbicidal effect varies with weed species, hence repeat applications may be necessary upon certain perennial weeds. Annual weeds are generally killed with one application.

Germination of seed is not affected by ADVANTAGE DIQUAT 240 for all crops which could go for seed sale.

ADVANTAGE DIQUAT 240 is easily applied in high or low volume sprayers. Very low volume or ultra low volume equipment for aerial application, e.g. rotary atomizer nozzles such as MICRONAIR, are not recommended. Flat fan or hollow cone nozzles are recommended for optimum results. Always use recommended water volume. Complete coverage is essential. DO NOT USE MIST BLOWERS.

ADVANTAGE DIQUAT 240 is rapidly absorbed by plants, and effectiveness is not reduced by rain falling shortly after treatment. EFFECTIVENESS OF THE TREATMENT MAY BE ENHANCED WHEN APPLICATION IS MADE ON CLOUDY DAYS OR PRIOR TO PERIODS OF DARKNESS.

Use clean (non-turbid) water for spraying ADVANTAGE DIQUAT 240. Muddy water will reduce the effectiveness of ADVANTAGE DIQUAT 240.

THE USER MUST BE AWARE THAT THIS PRODUCT ACCELERATES THE NATURAL PROCESS OF CROP DRY DOWN. IN CASES OF ADVERSE WEATHER CONDITIONS SUCH AS HEAVY RAIN, HAIL OR STRONG WIND, THE RESULTANT DAMAGE TO YOUR CROP MAY BE ENHANCED. TAKE NOTE THAT CERTAIN CROPS ARE MORE FRAGILE THAN OTHERS.

Crop waste remaining after harvest (e.g. pea vines, alfalfa stems) may be used as a feed supplement for livestock.

HARVESTING

The use of ADVANTAGE DIQUAT 240 facilitates direct combining of many field crops such as lentils, peas, canola, mustard or legumes. Growers who wish to swath desiccated crops should wait until the crop has dried down sufficiently to allow the desiccated crop to be picked up and threshed immediately after swathing. Delaying threshing after swathing desiccated crops will increase shattering and seed loss.

For most crops, harvest can normally commence within 4-10 days after desiccation. However, adverse weather conditions such as rainfall, cool temperatures and high humidity will slow plant desiccation and keep seed moisture levels high which can delay commencement of harvest beyond 10 days after application. When those conditions prevail after ADVANTAGE DIQUAT 240 desiccation, commence harvest when plant material is dry and seed moisture level allows efficient harvesting. To minimize seed loss and to maintain seed quality, harvest of desiccated crops should commence as soon as seed moisture reaches the level for normal harvest.

CLEANING SPRAYER AFTER USE

It is important to thoroughly wash equipment after spraying - use a wetting agent (AGRAL® 90 at 60 mL per 100 L of water), flush and spray out, then thoroughly rinse with clean water. When possible, the equipment should be filled with clean water and left overnight. Spray out before storing equipment or using for other materials.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Refer to the following table for a summary of rates, application volumes and growth stages for ground and aerial application of ADVANTAGE DIQUAT 240. The table provides operational information. The applicator is directed to the CROPS-ADDITIONAL NOTES section for any additional information prior to spraying. Ground spraying may be done with any standard boom sprayer.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, temperature inversions, application equipment and sprayer settings.

Mixers and loaders supporting aerial applications are required to use closed systems.

Field sprayer application: DO NOT apply during period of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C) and **humidity** (greater than 50%). DO NOT apply when wind speed is greater than 9 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To minimize spray drift, use flat fan or hollow cone nozzles, and a pressure of 150-200 kPa, with the nozzle pointed back 150°-180°. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wingspan or rotorspan.

For application to rights-of-way, buffer zones for production of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g. wind direction, low wind speed) and spray equipment (e.g. coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

Use AGRAL 90, a wetting and spreading agent, at a rate of 1 L for each 1000 L of spray mixture unless otherwise stated.

AGITATE WELL BEFORE USE.

Buffer zones:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of:			
		Aquatic Habitat of Depths:		Terrestrial Habitat	
		Less than 1 m	Greater than 1 m		
Field sprayer ¹	Beans, canola, flax, lentils, mustard, peas, sunflower, legume forage seed crops, sweet white lupins	5	3	3	
	Vegetable and field crops, fruit, non-cropland (including rights-of-way ² for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)	10	5	5	
Aerial	Beans, legume forage seed crops	Fixed wing	150	80	90
		Rotary wing	100	55	70

¹ For field sprayer application, buffer zones can be reduced with the use of drift-reducing spray shields. When using a spray boom fitted with a shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

² For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zones of the products involved in the tank mixture.

GROUND APPLICATION

Ground spraying may be done with any standard boom sprayer.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Mixers and loaders supporting aerial applications are required to use closed systems.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew must wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical-resistant footwear and a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides, or a NIOSH-approved canister approved for pesticides during mixing/loading, clean-up and repair.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Advantage Crop Protection Inc. Canada, Inc. at 1-888-931-2530 or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 45 litres per hectare.

Refer to ENVIRONMENTAL PRECAUTIONS for additional details.

ENVIRONMENTAL PRECAUTIONS

AIRCRAFT APPLICATION IS NOT RECOMMENDED WHERE WETLANDS OR WILDLIFE COVER MIGHT BE OVERSPRAYED. AVOID SPRAY DRIFT ONTO ADJACENT CROPS, SHELTER BELTS AND WILDLIFE COVER. AVOID OVERSPRAYING OR DRIFT ONTO SLOUGHS.

SINCE HERBICIDE APPLICATION MAY DAMAGE THE HABITAT OF MIGRATORY BIRDS AND OTHER WILDLIFE SPECIES, DO NOT USE AERIAL APPLICATION IN FIELDS WHERE WETLANDS OR OTHER GOOD WILDLIFE COVER MIGHT BE OVERSPRAYED; THIS INCLUDES SLOUGHS AND DRY SLOUGH MARGINS IN WESTERN CANADA. USE GROUND SPRAYERS AND LEAVE AN UNSPRAYED MARGIN OF 15 M AROUND THE BORDER OF ALL SLOUGHS.

Apply in weather conditions that will not promote drift. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C), **humidity** (greater than 50%), and **wind** 3.5-9 kph at flying height at the site of application. Do not apply in dead calm conditions or when temperature inversion is likely (e.g. evening when warm air is rising from crop or morning when sunshine warms the soil and air rises from the field). To avoid spray drift, use flat fan or hollow cone nozzles, and a pressure of 150-200 kPa, with the nozzles pointed back 150°-180°.

TABLE 1

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Field Crops					
Beans-White & Red Kidney, Soybeans and Adzuki beans	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray at 80-90% natural leaf defoliation and at least 80% of the pods have turned yellow. Consider pod turn only when determining application time in years when heavy vine growth is anticipated.
	1.7-2.1	Aerial	at least 45		
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	
2.3	Aerial	at least 45			
Canola	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply when 90% or more of seed has turned brown. Combine no later than 14 days after application.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		
Chickpeas	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green. For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Drydown is less complete in Kabuli type due to its thick pod wall.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	

Flax (including low linolenic acid varieties)	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when crop is at 75% boll turn stage.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	Harvest when flaxseed tests 'dry'.
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Legumes (alfalfa, birdsfoot trefoil, red clover and white clover) Seed Crops	1.7-2.7	Ground	225-550	Full canopy and/or weedy crop	Seed crops only. Apply when the majority of the pods of individual plants are ripe but before they shatter. To prevent pod shattering and loss of seed the interval between spraying and harvest should not exceed 7 days.
	1.7-2.7	Aerial	at least 45		
	2.7	Ground	225-550	Very dense canopy and/or weedy crop and/or secondary regrowth	
	2.7	Aerial	at least 45		
Lentils	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply ADVANTAGE DIQUAT 240 at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and rattle.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		
Mustard (condiment type only)	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when crop is at 75% seed turn (green to brown) stage.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	Combine no later than 14 days after application.
	2.3	Aerial	at least 45		
Oats - Corn Spurry Control	0.9	Ground	225-335	Corn spurry less than 8 cm high	Do not use wetters, spreaders or stickers.
	1.25	Ground	225-335	Corn spurry more than 8 cm high	Apply when oats are 8-15 cm in height. DO NOT apply using aerial application equipment.
Peas - Field or Dry	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply ADVANTAGE DIQUAT 240 when bottom pods of the majority of the plants are ripe & dry with the seeds detached from the pods. Seed in less mature pods will split when squeezed.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Sweet White Lupins	2.3	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when the pods are brown and the internal seed (endosperm) yellow when cut. DO NOT apply using aerial application equipment.
Sunflowers	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when seeds reach maturity (20-50% moisture in the seed and hull). Combine 15-20 days after spraying.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Vegetables & Field Crops					
Stale Seedbed	2.3	Ground	at least 300	Small weeds (3-5 cm high)	Stale Seedbed - Pre-emergent to crop, post emergent weeds.
	4.6	Ground	at least 300	Large weeds (greater than 5 cm high)	Burn off weeds either prior to, or after seeding, but 3 days before crop emergence. If grasses are present, use GRAMOXONE® in place of ADVANTAGE DIQUAT 240. DO NOT apply using aerial application equipment.
Vegetables					
Inter-row directed weeding	2.3-4.6	Ground	900-1100		If grasses are present use GRAMOXONE in place of ADVANTAGE DIQUAT 240. DO NOT apply using aerial application equipment
Fruit					
Perennial grass suppression under apple trees	4.6	Ground	225-675		DO NOT apply using aerial application equipment.
Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)					
Weed Control in non-crop land	2.3-4.6	Ground	550-1100		Use higher rates and higher volume of water for dense weed growth. Thoroughly wet foliage. DO NOT apply using aerial application equipment.

CROPS - ADDITIONAL NOTES

Beans

White and Red-Kidney Beans, Soybeans and Adzuki Beans

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Spray at 80-90% natural leaf defoliation and when at least 80% of the pods have turned yellow. In years of excessive vine regrowth, consider pod colour only for the timing of ADVANTAGE DIQUAT 240 application. Desiccation of weeds is completed in a week. **THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS.** Direct combine or pull beans when they are considered ready. Combining of dry beans and Adzuki beans can often be done the day of pulling; however, this is dependent on the condition of the beans.

ADVANTAGE DIQUAT 240 applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of ADVANTAGE DIQUAT 240 for beans as well as the highest registered water volume to obtain the best activity.

Canola

This treatment does not mature canola. ADVANTAGE DIQUAT 240 is an effective desiccant aiding in the harvest of canola. Speed of pod and stem dry down will vary depending on spray coverage, environmental conditions and plant growth stage at application; however pod and stem kill will take place 7-10 days after application.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Apply when 90% or more of seed has turned brown; application of ADVANTAGE DIQUAT 240 prior to this stage can result in high levels of green seed in the sample.

Commence harvest as soon as the crop can be combined since significant yield loss in standing desiccated canola crops, particularly Argentine varieties, can occur due to pod drop and pod shattering. This yield loss can be greater if harvest of the standing desiccated crop is delayed or when unfavourable weather conditions including high winds and heavy rainfall occur.

Germination of seed is not affected by ADVANTAGE DIQUAT 240 desiccation.

Chickpeas

This treatment does not mature chickpeas. Chickpea swaths are at risk to wind loss, and straight cutting is preferred. Timing is vital as premature desiccation will result in yield and quality loss. Crops should be closely monitored for correct stage of application. Application of ADVANTAGE DIQUAT 240 may cause the small stem attaching the pod to the chickpea plant to become brittle and lead to increased pod loss. Wait 4 to 7 days before combining the crop. It may be advantageous to harvest, and bin separately, chickpea grain from late maturing areas of the field. Use of higher water volumes will provide more complete coverage.

For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green.

For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Drydown is less complete in Kabuli type due to its thick pod wall.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage.

Germination of seed is not affected by ADVANTAGE DIQUAT 240 desiccation.

Flax (including low linolenic acid varieties)

ADVANTAGE DIQUAT 240 is an effective desiccant aiding in the harvest of flax (including low linolenic acid varieties). Desiccation reduces the period of time from maturity to harvest, reduces wear and tear on harvesting equipment, reduces harvest time, decreases the moisture content of the seed and eliminates the need for swathing.

Spray when the crop is at the 75% boll turn stage (normal swathing time). Do not

apply before 75% boll turn. Harvest when the flaxseed tests 'dry'.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage.

Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Germination of seed is not affected by ADVANTAGE DIQUAT 240 desiccation of the crop.

Fruit

Perennial Grass Suppression Under Apple Trees

See Table 1 for rates.

DO NOT apply using aerial application equipment.

Legumes

Alfalfa, Birdsfoot Trefoil, Red Clover, and White Clover Seed Crops

To prevent seed pod shattering and loss of seed, the interval between spraying and harvest should not exceed 7 days. NOTES: 1) Birdsfoot trefoil plants under drought or disease stress may be subject to damage when desiccated with ADVANTAGE DIQUAT 240. 2) Do not use ADVANTAGE DIQUAT 240 if a residual herbicide has been used on the legumes within the past 12 months.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Lentils

Apply ADVANTAGE DIQUAT 240 at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and seeds rattle. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs.

ADVANTAGE DIQUAT 240 applied to lentils under prolonged drought stress, rainfall, cool temperatures and high humidity will provide slower and less effective desiccation compared to applications made under normal growing conditions. If these conditions exist prior to application, use the highest registered rate of ADVANTAGE DIQUAT 240 for lentils as well as the highest registered water volume to obtain the best activity.

Harvest delays should be expected.

Mustard (condiment type only)

Spray when the crop is at the 75% seed turn (green to brown) stage. Do not apply when the crop is immature or past the recommended stage of maturity. Commence combining no later than 14 days after application. **NOTE:** Pod drop and some shattering can occur in high winds in the standing crop.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Apply by means of an aircraft fitted to apply uniform spray coverage.

Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)

Weed Control in Non-Crop Land

For the top kill of weeds, ADVANTAGE DIQUAT 240 will provide a rapid top-kill of weeds and grasses when applied as a foliar spray. ADVANTAGE DIQUAT 240 may be added to tank mixes of certain soil sterilants where immediate top kill and long term soil sterilization is required. The combined use with soil sterilants should be based on previous experimental experience, and recommendations on the label of the residual herbicide.

DO NOT apply using aerial application equipment.

Oats - Corn Spurry Control

ADVANTAGE DIQUAT 240, when applied by ground sprayer as recommended in Table 1 will burn corn spurry and give a temporary burning of the exposed oats leaves, but the plants quickly recover. Do not use any surfactant.

DO NOT apply using aerial application equipment.

Peas

This treatment does not mature peas. Because pea swaths are at considerable risk to wind losses, straight cutting should be considered. Timing is vital as premature desiccation will result in yield loss: crops should be closely monitored. Commence combining when the peas test "dry".

ADVANTAGE DIQUAT 240 applied to peas under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of ADVANTAGE DIQUAT 240 for peas as well as the highest registered water volume to obtain the best activity.

With indeterminate varieties, apply ADVANTAGE DIQUAT 240 when the lower pods of most plants are ripe, dry, translucent and shrunken, with enclosed seeds detached from the pods. Middle pods will be somewhat shrunken and leathery, and the seed will split when squeezed. Desiccation will dry out upper pods and green plant growth, leaving bottom and middle pods with the highest quality seed.

With determinate varieties, ADVANTAGE DIQUAT 240 should be applied when the top and upper middle pods are somewhat shrunken and leathery and seeds in these pods split when squeezed. The lower middle and bottom pods are ripe and dry, translucent and shrunken, with seeds enclosed in these pods detached.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Sweet White Lupins

Apply ADVANTAGE DIQUAT 240 once per season for pre-harvest desiccation. Spray when the pods are brown and the internal seed (endosperm) yellow when cut. Wait at least 7 days before harvesting. Do not add wetters, spreaders or stickers to the spray solution. Ground rig application only. Ground spraying may be done with any standard boom sprayer. DO NOT apply using aerial application equipment.

Sunflowers

ADVANTAGE DIQUAT 240 is an effective desiccant aiding in the harvest of sunflower seed for seed, oil production and confectionery use. If specialized high clearance equipment is available, ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too tall or the ground too soft for ground rigs. Do not apply when the crop is immature.

Combine 15-20 days after spraying.

Vegetables and Field Crops

Stale Seedbed - Pre-emergent to crop, Post-emergent to Weeds on Stale Seedbed

For weed control in beans (all types), beets, carrots, cole crops, corn, onions, peas, cucumbers, soybeans and turnips, prepare a stale seedbed by early cultivation (at least two to four weeks in advance of seeding) to stimulate weed growth. Seed without further cultivation and with a minimum of soil disturbance.

Apply by ground sprayer 2.3 to 4.6 L of ADVANTAGE DIQUAT 240 (2.3 L for small weeds, 3 to 5 cm high, and 4.6 L for larger weeds) in 300 L or more of water per hectare to burn off emerged weeds either prior to seeding or after seeding, but three days before crop emergence. If grasses are present, use GRAMOXONE herbicide in place of ADVANTAGE DIQUAT 240.

DO NOT apply using aerial application equipment.

Vegetables

Inter-row, Directed Chemical Weeding of Vegetable Crops

For weed control between the rows after crop and weed emergence, use suitable protective equipment and spray nozzle to protect crop from spray. If grasses are present, use GRAMOXONE herbicide in place of ADVANTAGE DIQUAT 240.

DO NOT apply using aerial application equipment.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Advantage Crop Protection Inc. under the User Requested Minor Use Label Expansion program. For these uses, Advantage Crop Protection Inc has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

FABA BEANS

RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
1.25-1.7	Ground	225-550	Use higher spray rates	Apply 1 application only for crop desiccation.
1.7-2.3	Aerial	at least 45	for dense canopies and/or weedy crops	<p>Apply when the majority of the plants are ripe and dry. Pods will be fully filled and the bottom pods will be tan or black in colour.</p> <p>For ground or aerial application, use AGRAL 90 as a wetting and spreading agent, at a rate of 1 L for each 1000 L of spray mixture.</p> <p>Observe a 4 – 10 day pre-harvest interval (PHI).</p> <p>Spray pressure should be increased with high clearance sprayers (90 – 100 psi) to ensure adequate coverage of ADVANTAGE DIQUAT 240 in the lower stem area. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Desiccation of weeds is completed in a week. THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS. ADVANTAGE DIQUAT 240 applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of ADVANTAGE DIQUAT 240 for beans as well as the highest registered water volume to obtain the best activity. Timing is vital as premature desiccation will result in yield loss; crops should be closely monitored.</p>

Resistance-Management Recommendations

For resistance management, ADVANTAGE DIQUAT 240 is a Group 22 herbicide. Any weed population may contain or develop plants naturally resistant to ADVANTAGE DIQUAT 240 and other Group 22 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of ADVANTAGE DIQUAT 240 or other Group 22 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.

Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact company representatives at Advantage Crop Protection Inc. Canada, Inc. at 1-888-931-2530.

AGRAL® and GRAMOXONE® are trademarks of a Syngenta Group Company.

ALL CLEAR

SPRAY TANK DECONTAMINATOR

SPECIAL NOTE: The use of ALL CLEAR® SPRAY TANK DECONTAMINATOR does not guarantee removal and/or neutralization of all residues. Some pesticides, such as 2,4-D and dicamba, may leave persistent or hard-to-remove residues. Many variables exist which make consistent tank cleaning difficult (i.e. water quality, use of cleaning equipment, quantity and type of residue, age and condition of spray tank, spray lines, nozzles, etc.). In order to ensure that all residues have been removed, apply a sample of the rinse water to sensitive plants (tomato, cotton, ornamentals, etc.) and after sufficient time, observe for wilting or severe stress. If stress occurs, repeat cleaning process and retest as above.

KEEP OUT OF REACH OF CHILDREN

WARNING

NET CONTENTS: 1 LITRE (33.8 ounces)



Manufactured for and Distributed by/Fabriqué pour et Distribué par :
Loveland Products Canada Inc.

789 Donnybrook Drive • Dorchester, Ontario N0L 1G5
Product inquiries / Renseignements sur les produits : 1-800-328-4678
24hr emergency contact / Contact en cas d'urgence, 24 heures sur 24 : 1-800-561-8273

A0313 CANADA

First Aid: If On Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. **If in Eyes:** Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. **If Swallowed:** Call a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. **If Inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.

General Information: ALL CLEAR is specially formulated to remove pesticide deposits and other debris, including oily substances, from tanks, hoses, booms, filters, screens and nozzles. ALL CLEAR was developed to handle difficult to clean chemicals (sulphonylurea herbicides and sticky formulations). ALL CLEAR will neutralize and solubilize phenoxy herbicides and solubilize sulphonylureas.

Directions for use: SHAKE WELL BEFORE USE. ALL CLEAR may be used as a general purpose cleaner and spray equipment decontaminator by varying the rate of ALL CLEAR

USE RATES: Equivalent dilution rates volume/volume

General purpose cleansing (0.25% v/v)

1 quart (32 fl. oz.) per 100 US gallons..... 250 mL per 100 L1 Tbsp./gallon

Decontamination (0.50% v/v)

2 quarts (64 fl. oz.) per 100 US gallons..... 500 mL per 100 L2 Tbsp./gallon

Cleaning Procedure:

1. Immediately after spraying, drain tank, hoses and boom completely. Remove nozzles and screens from boom. Any contamination on the outside of spraying equipment should be removed by washing with a fresh solution of ALL CLEAR and water. (50 mL per 10 L / 1.6 fl. oz. per 2.5 US gallons / 2 Tablespoons per 1 US gallon)
2. Rinse inside of tank of visible residues with clean water and flush through hoses and booms, using at least 1/10th of spray volume. Drain tank completely.
3. Half-fill tank with clean water and add ALL CLEAR at the selected rate. Agitate and flush the hoses and boom with the cleaning solution. Fill with water making sure the tank is completely full and allow to stand for 15 minutes with agitation. Again flush the hoses and boom and drain the tank completely.*
4. Nozzles, screens and filters should be cleaned with a fresh solution of ALL CLEAR and water. (50 mL per 10 litres / 1.6 fl. oz. per 2.5 US gallons / 2 Tablespoons per 1 US gallon)
5. Rinse the tank with clean water and flush through the hoses and boom. Drain tank completely.
6. Spray rinsate on site approved for the pesticide being removed from the spray tank or by other procedures approved by appropriate authorities.
7. Sample of final rinse may be applied to a susceptible plant to ensure total decontamination.

*NOTE: If it is not possible to drain the tank completely, step 3 must be repeated before going on to step 4. For additional information, refer to "A Guide to Application Equipment Cleanout (ref. H-42769) for DuPont Sulphonylurea Herbicides" by DuPont Chemical Company.

Reduced volume method for step 3. Refer to DuPont information for reduced volume cleanout procedure for large sprayers or add sufficient water plus selected rate of ALL CLEAR to provide adequate agitation and movement in the tank. Spray must contact all interior surfaces.

Storage: ALL CLEAR may separate if stored at high temperatures (85°F/29°C). Separation will not affect performance. Shake well before use. Store in cool, dry place. Store in original container. Keep tightly closed. Do not reuse empty container.

Disposal: Do not contaminate water, food or feed by storage or disposal. Offer container for recycling or dispose of in sanitary landfill or by other procedures approved by appropriate authorities.

Label continued on other side >

ALL CLEAR 1L CANADA A0313

WARRANTY DISCLAIMER AND NOTICE

THE DIRECTIONS FOR USE OF THIS PRODUCT ARE BELIEVED TO BE ADEQUATE AND SHOULD BE FOLLOWED CAREFULLY. IT IS IMPOSSIBLE TO ELIMINATE ALL RISKS INHERENTLY ASSOCIATED WITH THE USE OF THIS PRODUCT. CROP INJURY, INEFFECTIVENESS, OR OTHER UNINTENDED CONSEQUENCES MAY RESULT DUE TO SUCH FACTORS AS WEATHER CONDITIONS, PRESENCE OR ABSENCE OF OTHER MATERIALS, OR THE MANNER OF USE OR APPLICATION, ALL OF WHICH ARE BEYOND THE CONTROL OF LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER. THIS PRODUCT IS FURNISHED "AS IS" BY LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER, AND ARE SUBJECT ONLY TO THE MANUFACTURER'S WARRANTIES, IF ANY, WHICH APPEAR ON THIS LABEL. EXCEPT AS EXPRESSLY PROVIDED HEREIN, LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER MAKES NO WARRANTIES, GUARANTEES, CONDITIONS OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THIS PRODUCT OR USE OF THIS PRODUCT, INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE OR ELIGIBILITY OF THIS PRODUCT FOR ANY PARTICULAR TRADE USAGE. EXCEPT AS EXPRESSLY STATED HEREIN, LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER MAKES NO WARRANTY OF RESULTS TO BE OBTAINED BY USE OF THIS PRODUCT. BUYER'S OR USER'S EXCLUSIVE REMEDY, AND LOVELAND PRODUCTS CANADA INC.'S, THE MANUFACTURER'S OR SELLER'S TOTAL LIABILITY, SHALL BE LIMITED TO DAMAGES NOT EXCEEDING THE COST OF THIS PRODUCT. NO AGENT OR EMPLOYEE OF LOVELAND PRODUCTS CANADA INC. OR SELLER IS AUTHORIZED TO AMEND THE TERMS OF THIS WARRANTY DISCLAIMER OR THIS LABEL OR TO MAKE A REPRESENTATION OR RECOMMENDATION DIFFERENT FROM OR INCONSISTENT WITH THIS LABEL OR THIS PRODUCT. IN NO EVENT SHALL LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES (INCLUDING WITHOUT LIMITATION LOSS OF PROFITS OR REVENUES) RESULTING FROM THE USE, HANDLING, APPLICATION, STORAGE OR DISPOSAL OF THIS PRODUCT OR FOR DAMAGES IN THE NATURE OF PENALTIES AND THE BUYER AND USER WAIVE ANY RIGHT THEY MAY HAVE TO SUCH DAMAGES.

ALL CLEAR

SPRAY TANK DECONTAMINATOR

KEEP OUT OF REACH OF CHILDREN

WARNING

NET CONTENTS: 12 x 1 L



Manufactured for and Distributed by/Fabriqué pour et Distribué par :

Loveland Products Canada Inc.

789 Donnybrook Drive

Dorchester, Ontario N0L 1G5

Product inquiries / Renseignements sur les produits : 1-800-328-4678

24hr emergency contact / Contact en cas d'urgence, 24 heures sur 24 : 1-800-561-8273

IN CASE OF EMERGENCY DUE TO A MAJOR SPILL, FIRE OR POISONING INVOLVING THIS PRODUCT CALL DAY OR NIGHT, 1-800-561-8273 or CHEMTREC 1-800-424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURED FOR:

LOVELAND PRODUCTS CANADA, INC.
789 Donnybrook Drive • Dorchester, Ontario N0L 1G5

24-Hour Emergency Phone: 1-800-561-8273
Additional Emergency Phone (Canutec): 1-613-996-6666 (Collect)

CHEMICAL IDENTITY: Sodium dodecylbenzenesulfonate; 2-Aminoethanol

PRODUCT USE: Spray Tank Decontaminator

PCP REG. NO.: not applicable

SDS Number: 1000218407-15-LPI

SDS Revisions: Section 1

Date of Issue: 09/13/15

Supersedes: 09/13/12

2. HAZARDS IDENTIFICATION SUMMARY

KEEP OUT OF REACH OF CHILDREN – WARNING – Harmful if in eyes, swallowed, absorbed through skin or inhaled. Avoid breathing vapour or spray mist. Remove contaminated clothing and wash clothing before reuse. Irritating to eyes and skin. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling.

This product is a yellow-green liquid with mild odour. Primary routes of entry are eye contact and skin contact.

3. COMPOSITION, INFORMATION ON INGREDIENTS

<u>Chemical Ingredients:</u>	<u>Percentage by Weight:</u>	<u>CAS No.</u>	<u>TLV (Units)</u>
Sodium dodecylbenzenesulfonate	35.50	25155-30-0	Not listed
2-Aminoethanol	0.50	141-43-5	7.5 mg/m ³
Other Ingredients	60.00		

4. FIRST AID MEASURES

If on skin or clothing:	Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.
If in eyes:	Hold eye open and rinse slowly and gently with water 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.
If swallowed:	Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by the poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.
If inhaled:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-800-561-8273. Take container, label or product name and Pest Control Product Registration number with you when seeking medical attention.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F/Test Method):	>212°F (>100°C)
FLAMMABLE LIMITS (LFL & UFL):	Not established
EXTINGUISHING MEDIA:	Dry chemical, carbon dioxide (CO ₂), foam, water spray or fog.
HAZARDOUS COMBUSTION PRODUCTS:	May emit toxic fumes.
SPECIAL FIRE FIGHTING PROCEDURES:	Use water spray to cool containers exposed to fire. Remain upwind. Avoid breathing smoke. Wear self-contained breathing apparatus and full protective gear.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None known.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Avoid breathing vapors and contact with liquid. Collect as much liquid as possible in a clean container for reuse or absorb and sweep up immediately and transfer to suitable containers for disposal. Flush spill area with water after clean up. Check local, state and federal regulations for proper disposal.

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

7. HANDLING AND STORAGE

HANDLING:	Avoid breathing vapour or spray mist. Wash thoroughly with soap and water after handling. Use with adequate ventilation.
STORAGE:	Store in a cool, dry place. Store in original container. Keep tightly closed. Do not reuse empty container. Do not contaminate water food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Work in well-ventilated area, local exhaust may be required if working in confined space.
RESPIRATORY PROTECTION: Not normally required, if vapors or dusts exceed acceptable levels, wear a NIOSH/ MSHA approved pesticide respirator.
EYE PROTECTION: Chemical goggles or shielded safety glasses.
SKIN PROTECTION: Wear protective clothing: long-sleeved shirts and pants, socks and shoes. Wear rubber or chemical-resistant gloves.

2-Aminoethanol	OSHA PEL 8 hr TWA 6 mg/m ³	ACGIH TLV-TWA 7.5 mg/m ³
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9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Yellow-green liquid with mild odour
SPECIFIC GRAVITY (Water = 1): 1.037 g/ml
VAPOR PRESSURE: Not established
PERCENT VOLATILE (by volume): Not established
Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

BULK DENSITY: 1.04 kg/L
BOILING POINT: Not established
EVAPORATION RATE: Not established

SOLUBILITY: Soluble
pH: 10.6 (neat)

10. STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: High alkaline conditions.
INCOMPATIBILITY: Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: May emit toxic fumes in combustion.
HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

Acute Oral LD₅₀ (rat): >2000 mg/kg
Eye Irritation (rabbit): Not established
Inhalation LC₅₀ (rat): Not established
Carcinogenic Potential: None listed in OSHA, NTP, IARC or ACGIH

Acute Dermal LD₅₀ (rabbit): Not established
Skin Irritation (rabbit): Not established
Skin Sensitization (guinea pig): Not established

12. ECOLOGICAL INFORMATION

Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters. This product is biodegradable and readily absorbed in to soil.

13. DISPOSAL CONSIDERATIONS

Do not reuse containers for any purpose. Refillable Container: For disposal, the container may be returned to the point of purchase (dealer/distributor). It must be refilled by the dealer/distributor with the same product. Container is recyclable, and is to be disposed of at a container collection site. Contact your local dealer/distributor for the location of the nearest collection site. Before taking container to the collection site: Triple or pressure-rinse the empty container, adding the rinsate to the spray tank. Make the empty container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Do not contaminate water, food, or feed by storage or disposal.

14. TRANSPORT INFORMATION

DOT/TDG Shipping Description: NOT REGULATED BY USDOT
 U.S. surface Freight Classification: ADHESIVES, ADJUVANTS, SPREADERS OR STICKERS (NMFC 4610; CLASS: 60)
 Consult appropriate ICAO/IATA and IMDG regulations for shipment requirements in the Air and Maritime shipping modes

15. REGULATORY INFORMATION

NFPA & HMIS Hazard Ratings:		NFPA		HMIS
		1 Health	0 Least	1 Health
		0 Flammability	1 Slight	0 Flammability
		0 Instability	2 Moderate	0 Reactivity
			3 High	G PPE
			4 Severe	

SARA Hazard Notification/Reporting

SARA Title III Hazard Category: Immediate Y Fire N Sudden Release of Pressure N
 Delayed N Reactive N

Reportable Quantity (RQ) under U.S. CERCLA: Sodium dodecylbenzenesulfonate (CAS: 25155-30-0) 1000 lbs.

SARA, Title III, Section 313: Not listed

RCRA Waste Code: Not listed

CA Proposition 65: None applicable

16. OTHER INFORMATION

SDS STATUS: Section 1

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental Health and Safety

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Disclaimer and Limitation of Liability: This data sheet was developed from information on the constituent materials identified herein and does not relate to the use of such materials in combination with any other material or process. No warranty is expressed or implied with respect to the completeness or ongoing accuracy of the information contained in this data sheet, and LOVELAND PRODUCTS CANADA, INC. disclaims all liability for reliance on such information. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.

PMRA approved label - DS
Sub No. 2015-6719 (Aug 2016)
Compared to last approved label 2016-3672

GROUP	1	HERBICIDE
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ASSURE® II HERBICIDE

EMULSIFIABLE CONCENTRATE

FOR SALE FOR USE ON CAMELINA, CANOLA, ENLIST™ CORN, FLAX, (INCLUDING LOW LINOLENIC ACID VARIETIES), SUNFLOWERS, SOYBEANS (INCLUDING VARIETIES DESIGNATED “STS”), SEED ALFALFA, LENTILS, PEAS (FIELD AND PROCESSING), SEEDLING LEGUMES FOR SEED PRODUCTION, SEEDLING OR ESTABLISHED CREEPING RED FESCUE FOR SEED PRODUCTION, ESTABLISHED RED AND ALSIKE CLOVER FOR SEED PRODUCTION, DRY FABA BEANS (DRY BROAD BEANS) AND NARROW LEAF LUPIN, SUGARBEETS, AND SNAP BEANS; DRY COMMON BEANS; FOR USE IN WESTERN CANADA ON CHICKPEAS; CONDIMENT AND OILSEED TYPE ORIENTAL MUSTARD (INCLUDING CANOLA QUALITY BRASSICA JUNCEA); YELLOW AND BROWN MUSTARD; CRAMBE; ETHIOPIAN MUSTARD (BRASSICA CARINATA), SASKATOON BERRIES, THE FOLLOWING BEANS IN SOUTHERN ONTARIO (LIMA, ADZUKI AND MUNG BEANS); RUTABAGAS IN ONTARIO AND QUEBEC; AND ON INDUSTRIAL HEMP GROWN FOR FIBRE, SEED AND OIL PRODUCTION AND CUCURBIT VEGETABLES IN CANADA.

AGRICULTURAL

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

GUARANTEE: Quizalofop-p-ethyl 96 g/L

REGISTRATION NO. 25462 PEST CONTROL PRODUCTS ACT

DANGER – CORROSIVE TO EYES
WARNING - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

NET CONTENTS: 1 L to 1500 L

E.I. DU PONT CANADA COMPANY
AGRICULTURAL PRODUCTS
P.O BOX 2300 STREETSVILLE
MISSISSAUGA, ONTARIO
L5M 2J4
1-800-667-3925

PRECAUTIONS:

- **KEEP OUT OF REACH OF CHILDREN**
- DANGER – CORROSIVE TO EYES
- WARNING – SKIN IRRITANT
- POTENTIAL SKIN SENSITIZER
- May be harmful if swallowed, inhaled or absorbed through skin. Causes eye irritation.
- Do not get in eyes or on clothing. Avoid contact with skin. Avoid breathing vapours or spray mist. Use adequate ventilation.
- Wear goggles or face shield, chemical resistant gloves and coveralls over long-sleeved shirt and long pants during mixing, loading, clean-up and repair.
- For worker protection during application, wear a hat and coveralls over long-sleeved shirt and long pants.
- When using, do not eat, drink or smoke. Wash skin thoroughly with soap and water after handling.
- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse.
- Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, school and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
- DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days following application for scouting activities in camelina. For all other crops, do not enter or allow worker entry into treated areas during the REI of 12 hours.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca

ENVIRONMENTAL HAZARDS:

This product contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
TOXIC to aquatic organisms.

FIRST AID:

IF SWALLOWED:

Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES:

Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or the product name and Pest Control Product Registration number with you when seeking medical attention.

For medical emergencies call 1-800-441-3637 (24 hours).

TOXICOLOGICAL INFORMATION: THIS PRODUCT CONTAINS PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia. Treat symptomatically.

STORAGE:

Store product in original container only, away from fertilizer, seed, food or feed. Not for use or storage in or around the home. Keep container closed. DO NOT FREEZE.

DISPOSAL:

For recyclable containers

Disposal of Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For returnable containers

Disposal of Containers:

Do not use this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For containers that can be refilled for the user by the distributor/dealer

Disposal of Containers:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

ASSURE® II HERBICIDE

EMULSIFIABLE CONCENTRATE

FOR SALE FOR USE ON CAMELINA, CANOLA, ENLIST™ CORN, FLAX, (INCLUDING LOW LINOLENIC ACID VARIETIES), SUNFLOWERS, SOYBEANS (INCLUDING VARIETIES DESIGNATED "STS"), SEED ALFALFA, LENTILS, PEAS (FIELD AND PROCESSING), SEEDLING LEGUMES FOR SEED PRODUCTION, SEEDLING OR ESTABLISHED CREEPING RED FESCUE FOR SEED PRODUCTION, ESTABLISHED RED AND ALSIKE CLOVER FOR SEED PRODUCTION, DRY FABA BEANS (DRY BROAD BEANS) AND NARROW LEAF LUPIN, SUGARBEETS, AND SNAP BEANS; DRY COMMON BEANS; FOR USE IN WESTERN CANADA ON CHICKPEAS ; CONDIMENT AND OILSEED TYPE ORIENTAL MUSTARD (INCLUDING CANOLA QUALITY BRASSICA JUNCEA); SASKATOON BERRIES, YELLOW AND BROWN MUSTARD; CRAMBE; ETHIOPIAN MUSTARD (BRASSICA CARINATA), THE FOLLOWING BEANS IN SOUTHERN ONTARIO (LIMA, ADZUKI AND MUNG BEANS); RUTABAGAS IN ONTARIO AND QUEBEC; AND ON INDUSTRIAL HEMP GROWN FOR FIBRE, SEED AND OIL PRODUCTION AND CUCURBIT VEGETABLES IN CANADA.

AGRICULTURAL

READ THE LABEL AND THIS BOOKLET BEFORE USING

GUARANTEE: Quizalofop-p-ethyl 96 g/L

REGISTRATION NO. 25462 PEST CONTROL PRODUCTS ACT

DANGER – CORROSIVE TO EYES
WARNING - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

NET CONTENTS: 1 L to 1500 L

E.I. DU PONT CANADA COMPANY
AGRICULTURAL PRODUCTS
P.O BOX 2300 STREETSVILLE
MISSISSAUGA, ONTARIO
L5M 2J4
1-800-667-3925

PRECAUTIONS:

- **KEEP OUT OF REACH OF CHILDREN**
- DANGER – CORROSIVE TO EYES
- WARNING - SKIN IRRITANT
- POTENTIAL SKIN SENSITIZER
- May be harmful if swallowed, inhaled or absorbed through skin. Causes eye irritation.
- Do not get in eyes or on clothing. Avoid contact with skin. Avoid breathing vapours or spray mist. Use adequate ventilation.
- Wear goggles or face shield, chemical resistant gloves and coveralls over long-sleeved shirt and long pants during mixing, loading, clean up and repair.
- For worker protection during application, wear a hat and coveralls over long-sleeved shirt and long pants.
- When using, do not eat, drink or smoke. Wash skin thoroughly with soap and water after handling.
- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse.
- Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, school and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
- DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days following application for scouting activities in camelina. For all other crops, do not enter or allow worker entry into treated areas during the REI of 12 hours.

ENVIRONMENTAL HAZARDS:

This product contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
TOXIC to aquatic organisms.

FIRST AID:**IF SWALLOWED:**

Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES:

Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or the product name and Pest Control Product Registration number with you when seeking medical attention.

For medical emergencies call 1-800-441-3637 (24 hours).

TOXICOLOGICAL INFORMATION: THIS PRODUCT CONTAINS PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia. Treat symptomatically.

IMPORTANT

Injury to or loss of desirable trees or vegetation may result from failure to observe the following: Do not apply, drain or flush equipment on or near desirable trees or plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not use on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of spray to desirable plants. Do not contaminate any body of water including irrigation water that may be used on other crops.

Use caution when handling ASSURE® II Herbicide as accidental spills or splashes may harm the finish on painted equipment.

DO NOT SUBJECT TO TEMPERATURES BELOW 0°C.

GENERAL INFORMATION

ASSURE® II Herbicide is a selective postemergence herbicide for the control of annual and perennial grasses in flax (including low linolenic acid varieties), canola, sunflowers, soybeans (including varieties designated "STS"), seed alfalfa, lentils, peas (field and processing) and seedling legumes for seed production. Recommended rates and timing for ASSURE® II Herbicide application will provide control of the emerged grasses present.

ASSURE® II Herbicide does not control sedges or broadleaf weeds.

Grass crops, including wheat, barley, rye, oats, and corn are highly sensitive to ASSURE® II Herbicide.

When not in use, keep container closed to prevent evaporation or loss through spillage.

Under certain environmental conditions, minor leaf spotting may occur on soybeans. New growth is unaffected and there is no adverse effect on crop yield.

BIOLOGICAL ACTIVITY

ASSURE® II Herbicide is a systemic herbicide which is rapidly absorbed and readily translocated from the treated foliage to the root systems and growing points of the plant.

Control Symptoms - Treated plants show a reduction in growth and a loss of competitiveness. An early yellowing or browning of the younger plant tissues is followed by a progressive collapse of the remaining foliage. These symptoms will generally be observed in one to three weeks depending on the grass species treated and the environmental conditions.

DIRECTIONS FOR USE

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when the wind speed is greater than 16 km/h at flying height at the site of

application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing-or rotor- span.

Buffer Zones:

Uses of the following spray methods or equipment DO NOT require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Use rate		Buffer Zones (meters) Required for the Protection of:		
			Aquatic Habitat of Depths		Terrestrial Habitat
			Less than 1 m	Greater than 1m	
Field sprayer	Field crops up to 0.75 L/ha		1	0	3
Aerial	Field crops at 0.38 L/ha	Fixed wing	0	0	70
		Rotary wing	0	0	55
	Field crops at 0.5 L/ha	Fixed wing	0	0	85
		Rotary wing	0	0	70
	Field crops at 0.75 L/ha	Fixed wing	1	0	125
		Rotary wing	1	0	100

The spray drift buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

POSTEMERGENCE APPLICATIONS - CANOLA, FLAX (INCLUDING LOW LINOLENIC ACID VARIETIES), SUNFLOWERS (2-8 LEAF), SOYBEANS (INCLUDING VARIETIES DESIGNATED “STS”), SEED ALFALFA, LENTILS AND PEAS (FIELD AND PROCESSING) AND SEEDLING LEGUMES FOR SEED PRODUCTION; FOR USE IN WESTERN CANADA ON CONDIMENT AND OILSEED TYPE ORIENTAL MUSTARD (INCLUDING CANOLA QUALITY *Brassica juncea*), YELLOW AND BROWN MUSTARD; AND CRAMBE:

Apply the specified rate of ASSURE® II Herbicide with MERGE* at 5-10 litres per 1000 litres of spray solution, SURE-MIX™ at 0.5% (0.5 litres per 100 litres of spray solution), LI 700 at 0.25- 0.5% v/v or Liberate™ Adjuvant at 0.5% v/v at the leaf stage of the grass indicated below:

USE RATE (GROUND OR AERIAL):

0.38 L/ha	<u>Weeds Controlled</u>	<u>Weed Leaf Stage At Application</u>
	Green foxtail	2 leaf to early tillering
	Volunteer barley	2 leaf to early tillering
	Volunteer corn	2-6 leaf
	Volunteer oats	† 2 leaf to early tillering
	Volunteer wheat	2 leaf to early tillering
	Wild oats	1-5 leaf without tillers
0.5 L/ha	<u>Weeds Controlled</u>	<u>Weed Leaf Stage At Application</u>

	Those controlled by 0.38 L/ha and:	
	Barnyard grass	2 leaf to early tillering
	Wild oats	† 1-5 leaf to early tillering (up to two tillers)
	Fall panicum	2 leaf to early tillering
	Old Witchgrass	2 leaf to early tillering
	Proso millet	2 leaf to early tillering
	Yellow foxtail Foxtail Barley Downy brome Japanese brome	2 leaf to early tillering 3 leaf to 4 leaf + 3 tillers 2 – 5 leaf stage 2 – 5 leaf stage

0.5 L/ha	<u>Weeds Suppressed</u>	<u>Weed Leaf Stage At Application</u>
	Quackgrass	2-6 leaf

0.75 L/ha	<u>Weeds Controlled</u>	<u>Weed Leaf Stage At Application</u>
	Those listed above and: Quackgrass	2-6 leaf

† Best results on volunteer/wild oats if application is made before tillering begins.

Use the higher rate of MERGE* when wild oats or quackgrass are the main target weeds, or under conditions not conducive to good growth.

When using a broadleaf herbicide, other than those registered for tank mixing with ASSURE® II Herbicide, wait a minimum of 24 hours after the ASSURE® II Herbicide application to apply the broadleaf herbicide or wait 7 days after the broadleaf application to apply ASSURE® II Herbicide.

POSTEMERGENCE APPLICATIONS – CHICKPEAS

For the control of grassy weeds listed on the label, apply ASSURE® II Herbicide as a single post-emergent spray at a rate of 0.38 L/ha to 0.75 L/ha with a recommended surfactant (MERGE* or SURE-MIX™) at 5 litres per 1000 litres of spray (0.5% v/v), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v

Use ground application only. Use in a minimum of 100 litres of water/ha.

Do not apply within 85 days of harvest.

Refer to the appropriate sections of the ASSURE® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions.

TANK MIXTURES WITH BROADLEAF HERBICIDES

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

CONDIMENT AND OILSEED TYPE ORIENTAL MUSTARD (INCLUDING CANOLA QUALITY *Brassica juncea*), AND BROWN MUSTARD IN WESTERN CANADA

For control of broadleaf weeds and grasses in condiment and oilseed type oriental mustard (including canola quality *Brassica juncea*) and brown mustard, apply a tank mixture of MUSTER® Toss-N-Go® Herbicide plus ASSURE® II Herbicide. Use MUSTER® Toss-N-Go® Herbicide at 20 grams per hectare plus 0.38 - 0.5 litres per hectare ASSURE® II Herbicide plus MERGE* at 5-10 litres per 1000 litres of spray solution or SURE-MIX™ at 0.5% (0.5 litres per 100 litres of spray solution), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v. Refer to the "Mixing Instructions" section of this label for specific mixing instructions.

Additional surfactant is not required when using MERGE* ,SURE-MIX™, LI 700 or Liberate™ Adjuvant . For best results, follow the timing restrictions and specific weed control recommendations stated on each product's label. After application follow the sprayer clean-out directions on the MUSTER® Toss-N-Go® Herbicide label. Consult the MUSTER® Toss-N-Go® Herbicide label for desired use rates, weeds controlled and additional restrictions regarding the use of MUSTER® Toss-N-Go® Herbicide.

NOTE:

When tank mixed with ASSURE® II Herbicide plus SURE-MIX™ MERGE* adjuvant, LI 700 or Liberate™ Adjuvant, MUSTER® Toss-N-Go® Herbicide will control stinkweed at the 20 grams per hectare rate.

CANOLA

DO NOT APPLY BY AIR.

For control of broadleaf weeds and grasses in canola (rapeseed), apply a tank mixture of MUSTER® Herbicide plus ASSURE® II Herbicide. Use MUSTER® Herbicide at 20 or 30 grams per hectare plus 0.38 - 0.5 litres per hectare ASSURE® II Herbicide plus MERGE* at 5-10 litres per 1000 litres of spray solution, SURE-MIX™ at 0.5% (0.5 litres per 100 litres of spray solution), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v. Refer to the "Mixing Instructions" section of this label for specific mixing instructions.

Additional surfactant is not required when using MERGE* ,SURE-MIX™, LI 700 or Liberate™ Adjuvant. For best results, follow the timing restrictions and specific weed control recommendations stated on each product's label. After application follow the sprayer clean-out directions on the MUSTER® Herbicide label. Consult the MUSTER® Herbicide label for desired use rates, weeds controlled and additional restrictions regarding the use of MUSTER® Herbicide.

NOTE:

When tank mixed with ASSURE® II Herbicide plus SURE-MIX™, MERGE* adjuvant, LI 700 or Liberate™ Adjuvant , MUSTER® Herbicide will control stinkweed at the 20 grams per hectare rate.

Glufosinate ammonium tolerant Canola Varieties (Liberty Link Canola)

For control of broadleaf weeds and grasses in glufosinate ammonium tolerant canola (Liberty Link Canola), apply a tank mixture of ASSURE® II Herbicide plus Liberty 150 SN Herbicide. Use Liberty 150 SN Herbicide at 1.33 to 4L/ha plus 0.38-0.75 L/ha of ASSURE® II Herbicide plus MERGE* at 5-10 litres per 1000 litres of spray solution, SURE-MIX™ at 0.5% (0.5 litres per 100 litres of spray solution), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v. Refer to the "Mixing Instructions" section of this label for specific mixing instructions.

Apply a tank mixture of Assure® II Herbicide plus Liberty 150 SN Herbicide at cotyledon to early bolting stage of the glufosinate ammonium tolerant Canola.

Additional surfactant is not required when using MERGE* , SURE-MIX™, LI 700 or Liberate™ Adjuvant. For best results, follow the timing restrictions and specific weed control recommendations stated on each product's label. After application, follow the sprayer clean-out directions on the Liberty 150 SN Herbicide label. Consult the Liberty 150 SN Herbicide label for desired use rates, weeds controlled and additional restrictions regarding the use of Liberty 150 SN Herbicide.

SOYBEANS

ASSURE® II Herbicide + CLASSIC® Herbicide

DO NOT APPLY BY AIR.

For the control of Annual Grasses, Common Ragweed, Redroot Pigweed, and Velvetleaf, apply a tank mixture of ASSURE® II Herbicide plus CLASSIC® Herbicide. Use ASSURE® II Herbicide at 0.38 to 0.63 litres per hectare plus CLASSIC® Herbicide at 36 grams per hectare. Add SURE-MIX™ at 0.5% (0.5 litres per 100 litres of spray solution), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v.

Use a minimum of 0.5 litre per hectare rate of ASSURE® II Herbicide when quackgrass and yellow foxtail are present in the field. The tank-mix of CLASSIC® Herbicide and ASSURE® II Herbicide may result in reduced control of these two grassy weeds. For more consistent control of yellow foxtail, use 0.63 litre per hectare of ASSURE® II Herbicide.

For optimum leaf stage timing of broadleaf weeds, consult the CLASSIC® Herbicide label. If leaf stages of the grass and broadleaf weeds do not coincide, a sequential application of the grass and broadleaf herbicides is required to ensure satisfactory control. Consult the CLASSIC® Herbicide label for general information and use precautions.

ASSURE® II Herbicide + PINNACLE® Toss-N-Go® Herbicide + BASAGRAN* FORTE Herbicide

DO NOT APPLY BY AIR.

For the control of annual grassy and broadleaf weeds, apply a tank mixture of ASSURE® II Herbicide plus PINNACLE® Toss-N-Go® Herbicide plus BASAGRAN* FORTE Herbicide. Use ASSURE® II Herbicide at 0.63 litres per hectare plus PINNACLE® Toss-N-Go® Herbicide at 5.5 - 8.0 grams per hectare plus BASAGRAN* FORTE Herbicide at 1.75 - 2.25 litres per hectare. Add SURE-MIX™ at 0.5% (0.5 litres per 100 litres of spray solution), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v. Consult the PINNACLE® Toss-N-Go® Herbicide and BASAGRAN* FORTE Herbicide labels for the correct use rate for the broadleaf weeds present. Weeds controlled by 0.63 L/ha of ASSURE® II Herbicide in this tank mix are listed on this label at 0.5 L/ha (when ASSURE® II Herbicide is used alone). The increase in the application rate of ASSURE® II Herbicide in this tank mix is required for consistent grassy weed control.

For optimum leaf stage timing of broadleaf weeds, consult the PINNACLE® Toss-N-Go® Herbicide and BASAGRAN* FORTE Herbicide labels. If leaf stages of the grass and broadleaf weeds do not coincide, a sequential application of the grass and broadleaf herbicides is required to ensure satisfactory control. Do not apply before the crop has 1 - 2 full trifoliolate leaves.

DO NOT FREEZE.

Consult the PINNACLE® Toss-N-Go® Herbicide and BASAGRAN* FORTE Herbicide labels for general information and use precautions.

ASSURE® II Herbicide + PINNACLE® Toss-N-Go® Herbicide

DO NOT APPLY BY AIR.

For the control of annual grassy and specific broadleaf weeds, apply a tank mixture of ASSURE® II Herbicide + Pinnacle® Toss-N-Go® Herbicide. Use ASSURE® II Herbicide at 0.5 litres per hectare plus Pinnacle® Toss-N-Go® Herbicide at 5.5 - 8.0 grams per hectare. Add SURE-MIX™ at 0.5% (0.5 litres per 100 litres of spray solution), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v. Consult the Pinnacle® Toss-N-Go® Herbicide label for the correct use rate for the broadleaf weeds present.

Consult the timing section of this label for the correct timing of application to grassy weeds. For optimum leaf stage timing of broadleaf weeds, consult the Pinnacle® Toss-N-Go® Herbicide label. If leaf stages of the grass and broadleaf weeds do not coincide, a sequential application of the grass and broadleaf herbicides is required to ensure satisfactory control. Do not apply before the crop has 1-2 full trifoliolate leaves.

Velvetleaf control may be reduced with a single tank mix application. For optimum control, make separate applications of ASSURE® II Herbicide and Pinnacle® Toss-N-Go® Herbicides.

DO NOT FREEZE.

Consult the Pinnacle® Toss-N-Go® Herbicide label for precautions, weeds controlled and additional restrictions on the use of Pinnacle® Toss-N-Go® Herbicide.

ASSURE® II Herbicide + RELIANCE™ STS™ TOSS-N-GO® HERBICIDE

DO NOT APPLY BY AIR.

For the control of annual grassy and broadleaf weeds in sulfonylurea tolerant soybean varieties (varieties designated "STS"), apply a tank mixture of ASSURE® II Herbicide plus RELIANCE™ STS™ Toss-N-Go® Herbicide. Use at 0.36 to 0.53 litres per hectare plus RELIANCE™ STS™ Toss-N-Go® Herbicide at 42.8 grams per hectare. Add SURE-MIX™ at 0.5% (0.5 litres per 100 litres of spray solution), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v.

Use a minimum of 0.5 litre per hectare rate of ASSURE® II Herbicide when quackgrass and yellow foxtail are present in the field. The tank mix of RELIANCE™ STS™ Toss-N-Go® Herbicide and ASSURE® II Herbicide may result in reduced control of these two grassy weeds. Use the 0.63 litre per hectare rate of ASSURE® II Herbicide for more consistent control of yellow foxtail.

For optimum leaf stage timing of broadleaf weeds, consult the RELIANCE™ STS™ Toss-N-Go® Herbicide label. If leaf stages of the grass and broadleaf weeds do not coincide, a sequential application of the grass and broadleaf herbicides is required to ensure satisfactory control.

Consult the RELIANCE™ STS™ Toss-N-Go® Herbicide general information and use precautions.

TRIBENURON-METHYL TOLERANT SUNFLOWERS

EXPRESS® SG Herbicide plus Assure® II Herbicide plus Merge* at 0.5-1.0 % v/v (0.5-1.0 litres per 100 litres of spray solution) or SURE-MIX™ at 0.5% v/v (0.5 litres per 100 litres of spray solution) for control and suppression of grassy and broadleaf weeds listed below.

Apply EXPRESS® SG Herbicide at 15 g/ha and Assure® II Herbicide at labelled rates plus Merge* at 0.5-1.0 % v/v (0.5-1.0 litres per 100 litres of spray solution) or SURE-MIX™ at 0.5% v/v (0.5 litres per 100 litres of spray solution) at the 2-8 leaf stage of the tribenuron-methyl tolerant sunflowers (e.g. ExpressSun™ sunflowers SU7) and at the leaf stage of the grass and broadleaf weeds indicated below. Application should be made using a minimum spray volume of 55 L/ha.

EXPRESS® SG Herbicide 15 g /ha + Assure® II Herbicide plus Merge or Sure-Mix	
Weeds Controlled	Weeds Suppressed
Lamb's-quarters	Wild Buckwheat

Plus all weeds according to rates of use on the Assure® II label

Plus all weeds according to rates of use on the Assure® II label

For use in propagation of seed corn containing the Enlist™ corn herbicide trait and control of grassy weeds in Enlist™ field corn

Assure® II Herbicide can be applied as a foliar spray to control labelled grassy weeds in field and seed corn containing the Enlist™ corn herbicide trait.

Apply Assure® II Herbicide to emerged corn that is at the 2-8 leaf stage. Apply at 0.38 L/ha – 0.75 L/ha according to the weed species that are desired for control. Do not apply more than once per season. Assure II ® Herbicide must be applied with a recommended surfactant (see the DIRECTIONS FOR USE section).

Assure® II Herbicide may be applied to remove undesirable corn plants that do not contain the Enlist™ corn herbicide trait during seed propagation. For control of individual corn plants not carrying the Enlist™ corn herbicide trait in a field of Enlist™ seed corn, apply Assure® II Herbicide at 0.38 L/ha.

Use of Assure® II Herbicide on corn varieties or hybrids, other than Enlist™ corn, will result in severe injury and/or death of the crop.

Do not aerially apply Assure® II Herbicide on field containing the Enlist™ corn trait.

Do not harvest forage within 30 days of application.

Do not allow grazing on treated corn within 30 days of application. For all other crops, do not graze the treated crops or cut for hay as sufficient data are not available to support such use.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than DuPont Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion Program. DuPont Canada Inc. itself makes no representation or warranty with respect to product performance (efficacy) and crop tolerance (phytotoxicity) of this product when used on the crops listed below. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold DuPont Canada Inc. harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

FOR SALE FOR USE ON SEEDLING LEGUMES FOR SEED PRODUCTION ONLY:

For bird's-foot trefoil, alsike, red, white and sweet clover, and sainfoin, make a postemergent broadcast application of:

ASSURE® II Herbicide	0.5-0.75 litres/hectare
plus	
SURE-MIX™	0.5% (0.5 litres per 100 litres of spray solution)

DO NOT graze or cut for hay in the year of treatment.

Refer to the weed control chart printed in the Directions for Use section of this label for application rates to control quackgrass and annual grass species. Application to the above species should be made before crop canopy closes.

Make only one application per growing season. Apply the spray mixture with ground equipment only. Use a properly calibrated sprayer that will provide thorough coverage of the weeds with the spray solution. Apply a minimum of 100 litres/ha of total spray volume.

FOR SALE FOR USE ON ESTABLISHED CREEPING RED FESCUE FOR SEED PRODUCTION ONLY

For postemergent broadleaf and grassy weed control:

ASSURE® II Herbicide	0.5–0.75 litres/hectare
Plus	
ALLY® Herbicide	7.5 grams/hectare
Plus	
SURE-MIX™ LI 700 Liberate™ Adjuvant	5 litres per 1000 litres spray solution 0.25-0.5% v/v 0.5% v/v

This tank mix will control all label weeds listed on this label and the ALLY® Herbicide label.

Apply ASSURE® II Herbicide + ALLY® Herbicide tank mixture post emergent to the first main flush of actively growing weeds, when established creeping red fescue is in the 2 leaf to flag leaf (shot blade) stage. Apply before the crop canopy is dense enough to prevent thorough coverage of the weeds.

Apply with ground equipment only. Make only one application per growing season.

Refer to other sections of this label, and to the ALLY® Herbicide label for additional application and/or use precaution instructions.

FOR SALE FOR USE ON SEEDLING OR ESTABLISHED CREEPING RED FESCUE FOR SEED PRODUCTION ONLY:

For control of quackgrass and annual grassy weeds, make a postemergent broadcast application of:

ASSURE® II Herbicide	0.5 - 0.75 litres/hectare
Plus	
SURE-MIX™ LI 700 Liberate™ Adjuvant	5 litres per 1000 litres spray solution 0.25-0.5% v/v 0.5% v/v

Do not graze or cut treated established red fescue for feed or hay in the year of treatment.

Apply when quackgrass is in the 2-6-leaf stage and when annual grassy weeds are from the 2-leaf stage to early tillering. Application to the above species should be made before crop canopy closes. Refer to other sections of this label for a list of grassy weeds controlled as well as the recommended ASSURE® II Herbicide rates depending on the leaf stage of quackgrass or the annual grass species that are present.

Make only one application per growing season. Apply the spray mixture with ground equipment only. Use a properly calibrated sprayer that will provide thorough coverage of the weeds with the spray solution. Apply a minimum of 100 litres/ha of total spray volume.

FOR SALE FOR USE ON ESTABLISHED RED AND ALSIKE CLOVERS FOR SEED PRODUCTION ONLY.

Refer to the weed control chart printed in the Directions for Use section of this label for application rates, adjuvant and rates and appropriate stages to control quackgrass, annual grass species, and volunteer cereals. Application should be made before crop canopy closes.

Make only one application per growing season. Apply the spray mixture with ground equipment only. Use a properly calibrated sprayer that will provide thorough coverage of the weeds with the spray solution. Apply a minimum of 100 litres/ha of total spray volume.

ASSURE® II Herbicide	0.38 – 0.75 L/ha
Plus	
SURE MIX™, Merge*, 0.5 % v/v (5 L /1000 L spray solution), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v	
DO NOT graze or cut for hay in the year of treatment.	
DO NOT apply within 30 days of harvest.	
FOR SALE FOR USE ON SNAP BEANS	
For control of annual grasses apply:	
ASSURE® II Herbicide	0.38 – 0.75 L/ha
Plus	
MERGE*	5 - 10 litres per 1000 litres of spray solution
Or	
SURE-MIX™ LI 700 Liberate™ Adjuvant	0.5% (0.5 litres per 100 litres of spray solution). 0.25-0.5% v/v 0.5% v/v
Apply one application per year at the 2- to 5-leaf stage of annual grasses and up to the 3-leaf stage of quackgrass. Do not harvest until 30 days after application. Apply the spray mixture with ground equipment only.	
FOR SALE FOR USE ON SUGARBEETS IN CANADA	
Apply ASSURE® II Herbicide as a post emergent broadcast application to small, emerged grassy weeds between the 2 leaf to early tillering leaf stage. Application to grassy weeds should be made before the crop canopy closes to maximize spray coverage.	
To control annual grasses and volunteer cereals, apply:	
ASSURE® II Herbicide	0.38 L/ha
Plus	
SURE-MIX™ LI 700 Liberate™ Adjuvant	0.5% (0.5 litres per 100 litres of spray solution). 0.25-0.5% v/v 0.5% v/v
If a second flush of annual grasses or volunteer cereals is observed, apply an additional (sequential) application of ASSURE® II Herbicide at 0.38 L /ha + recommended adjuvant.	
To control annual grasses, volunteer cereals and quackgrass apply ASSURE® II Herbicide at 0.75 L/ha + recommended adjuvant.	
Do not exceed an accumulative, seasonal use rate of 0.75 L/ha of ASSURE® II Herbicide per year.	
Apply the spray mixture with ground equipment only. Use a properly calibrated sprayer that will provide thorough coverage of the weeds with the spray solution. Do not apply to sugar beets within 60-80 days of harvest.	
For a complete list of grassy weeds, as well as additional application and/or use precaution instructions please refer to other sections of this label.	

FOR SALE FOR USE ON ALL DRY COMMON BEANS OF THE SPECIES *PHASEOLUS VULGARIS* INCLUDING BUT NOT LIMITED TO ALL DRY COMMON BEAN TYPES LISTED ON THIS LABEL.

For the control of grassy weeds listed on the label as well as volunteer cereals, corn, and quackgrass, apply ASSURE® II Herbicide as a single post-emergent spray at a rate of 0.38 L/ha to 0.75 L/ha with a recommended surfactant (MERGE* ,SURE-MIX®) at 5 litres per 1000 litres of spray (0.5% v/v), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v.. See “Mixing Instructions” section of the ASSURE® II Herbicide label booklet.

Dry common bean varieties may vary in their tolerance to herbicides, including ASSURE® II Herbicide. The tolerance of some dry common bean varieties listed on this label has been confirmed when ASSURE® II Herbicide is applied as directed. Since not all dry common bean varieties have been tested for tolerance to ASSURE® II Herbicide, first use of ASSURE® II Herbicide should be limited to a small area of each variety to confirm tolerance prior to adoption as a general field practice. Additionally, consult your seed supplier for information on the tolerance of specific varieties of dry common beans to ASSURE® II Herbicide.

Do not apply within 30 days of harvest.

Refer to the appropriate sections of the ASSURE® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions.

FOR SALE FOR USE IN WESTERN CANADA ON PINTO, NAVY, GREAT NORTHERN, PINK AND SMALL RED BEANS

For the control of grassy weeds listed on the label, apply ASSURE® II Herbicide as a single post-emergent spray at a rate of 0.38 L/ha to 0.75 L/ha with a recommended surfactant (MERGE* or SURE-MIX™) at 5 litres per 1000 litres of spray (0.5% v/v), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.55 v/v. See “Mixing Instructions” section of the ASSURE® II Herbicide label booklet.

Use ground application only. Use in a minimum of 100 litres of water/ha.

Do not apply within 30 days of harvest.

Refer to the appropriate sections of the ASSURE® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions.

FOR SALE FOR USE IN SOUTHERN ONTARIO ON WHITE, WHITE AND RED KIDNEY, CRANBERRY, BLACK, BROWN AND YELLOW EYE, LIMA, MUNG, OTEBO AND ADZUKI BEANS

For the control of grassy weeds listed on the label as well as volunteer cereals, corn, and quackgrass, apply ASSURE® II Herbicide as a single post-emergent spray at a rate of 0.375 L/ha to 0.75 L/ha with a recommended surfactant (MERGE* or SURE-MIX™) at 5 litres per 1000 litres of spray (0.5% v/v), LI 700 at 0.25 or 0.5% v/v or Liberate™ Adjuvant at 0.5% v/v. See “Mixing Instructions” section of the ASSURE® II Herbicide label booklet.

Apply at the 2-5-leaf stage of the annual grasses.

Apply the spray mixture with ground equipment only.

Do not apply within 30 days of harvest.

Refer to the appropriate sections of the ASSURE® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions.

FOR SALE FOR USE ON ETHIOPIAN MUSTARD (*BRASSICA CARINATA*)

Apply the specified rate of ASSURE® II Herbicide with MERGE* at 5-10 litres per 1000 litres of spray solution, SURE-MIX™ at 0.5% (0.5 litres per 100 litres of spray solution), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v at the leaf stage of the grass indicated below:

USE RATE (GROUND OR AERIAL):

	Weeds Controlled	Weed Leaf Stage At Application
0.38 L/ha	Green foxtail	2 leaf to early tillering
	Volunteer barley	2 leaf to early tillering
	Volunteer corn	2-6 leaf
	Volunteer oats	† 2 leaf to early tillering
	Volunteer wheat	2 leaf to early tillering
	Wild oats	1-5 leaf without tillers

	Weeds Controlled	Weed Leaf Stage At Application
0.5 L/ha	Those controlled by 0.38 L/ha and:	
	Barnyard grass	2 leaf to early tillering
	Wild oats	† 1-5 leaf to early tillering (up to two tillers)
	Fall panicum	2 leaf to early tillering
	Old Witchgrass	2 leaf to early tillering
	Proso millet	2 leaf to early tillering
	Yellow foxtail	2 leaf to early tillering
	Foxtail barley	3 leaf to 4 leaf + 3 tillers
	Quackgrass (Suppression only)	2-6 leaf

† Best results on volunteer/wild oats if application is made before tillering begins.

† Use the higher rate of MERGE* when wild oats or quackgrass are the main target weeds, or under conditions not conducive to good growth.

DO NOT apply within 64 days of harvest.

FOR SALE FOR USE ON DRY FABA BEANS (DRY BROAD BEANS) AND NARROW LEAF LUPIN

For the control of grassy weeds listed on the label, apply ASSURE® II Herbicide as a single post-emergent spray at a rate of 0.38 L/ha to 0.75 L/ha with SURE-MIX™ at 5 litres per 1000 litres of spray (0.5% v/v). See "Mixing Instructions" section of the ASSURE® II Herbicide label booklet.

Use ground application only. Use 100-400 litres of water/ha.

Do not apply within 30 days of harvest.

Refer to the appropriate sections of the ASSURE® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions

TANKMIX IN WESTERN CANADA:

FOR SALE FOR USE ON PINTO, PINK, GREAT NORTHERN AND SMALL RED BEANS IN WESTERN CANADA

For the control of volunteer cereals, wild oats, and broadleaf weeds listed on the Basagran* Herbicide label, apply a post-emergent tankmix (at the 1-3 trifoliolate stage of beans) of ASSURE® II Herbicide at a rate of 0.63 L/ha with Basagran* Herbicide at a rate of 1.75-2.25 L/ha.

Add a recommended surfactant (SURE-MIX®) at 5 litres per 1000 litres of spray (0.5% v/v), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v. See "Mixing Instructions" section of the ASSURE® II Herbicide label booklet.

Do not apply within 65 days of harvest. Make only one application per growing season.

Refer to the appropriate sections of the ASSURE® II Herbicide and Basagran* Herbicide label booklets for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions.

FOR SALE FOR USE ON INDUSTRIAL HEMP GROWN FOR FIBRE, SEED AND OIL

For the control of weeds listed on the label, apply ASSURE® II Herbicide as a single post-emergent spray at a rate of 0.38 L/ha to 0.75 L/ha with SURE-MIX™ or Merge adjuvant at a rate of 5L per 1,000 L of solution (0.5% v/v). See "Mixing Instructions" section of the ASSURE® II Herbicide label booklet.

Make one application per year when the crop is at the 2-6 crop leaf stage (6-25 cm in height)

Apply the spray mixture with ground equipment only

Use in a minimum of 100 litres of water/ha with a spray pressure of 210-275 kPa.

Refer to the appropriate sections of the ASSURE® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions.

For industrial hemp grown for fibre, seed and oil grown for food processing purposes (seed, oil, seed meal and flour) do not apply within 73 days of harvest.

FOR SALE FOR USE IN ONTARIO AND QUEBEC ON RUTABAGAS

For the control of grassy weeds listed on the label, corn, and quackgrass, apply ASSURE® II Herbicide as a single post-emergent spray at a rate of 0.375 L/ha to 0.75 L/ha with a recommended surfactant (MERGE* or SURE-MIX™) at 5 litres per 1000 litres of spray (0.5% v/v), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v. See "Mixing Instructions" section of the ASSURE® II Herbicide label booklet.

Apply at the 2-5-leaf stage of the annual grasses.

Apply the spray mixture with ground equipment only.

Do not apply within 30 days of harvest.

Refer to the appropriate sections of the ASSURE® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions.

FOR SALE FOR USE ON INDUSTRIAL HEMP GROWN FOR FIBRE, SEED AND OIL

For the control of weeds listed on the label, apply ASSURE® II Herbicide as a single post-emergent spray at a rate of 0.38 L/ha to 0.75 L/ha with SURE-MIX™ adjuvant at a rate of 5L per 1,000 L of solution (1.0% v/v), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v. See “Mixing Instructions” section of the ASSURE® II Herbicide label booklet.

Make one application per year when the crop is at the 2-6 crop leaf stage (6-25 cm in height)

Apply the spray mixture with ground equipment only

Use in a minimum of 100 litres of water/ha with a spray pressure of 210-275 kPa.

Refer to the appropriate sections of the ASSURE® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions.

For industrial hemp grown for fibre, seed and oil do not apply within 73 days of harvest.

FOR SALE FOR USE IN ONTARIO ON SOYBEANS ONLY

For the control of Long-spined Sandbur, apply ASSURE® II Herbicide as a single post-emergent spray at a rate of 0.38 L/ha (36 g a.i./ha) at the 2 leaf to tillering stage of Long-spined Sandbur. ASSURE® II Herbicide must be applied with an adjuvant such as SURE-MIX™ at a rate of 5 litres per 1,000 litres of spray solution (0.5 % v/v, LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v.) See “Mixing Instructions” section of the ASSURE® II Herbicide label booklet.

Do not apply to soybeans within 80 days of harvest.

Use ground application only.

Refer to the appropriate sections of the ASSURE® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions.

FOR SALE FOR USE IN CANADA ON CAMELINA SATIVA

DO NOT APPLY BY AIR

For control or suppression of the weeds on this label, make one application of 0.38 – 0.75 L/ha plus 0.5 % v/v Merge* , Sure-Mix™, LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v. Use a minimum spray volume of 100 L/ha.

DO NOT apply within 64 days of harvest.

DO NOT use open cab equipment if treating more than 290 ha/day. If treating more than 290 ha/day, closed cab equipment, long-sleeved shirt, long pants, socks, and shoes are required for application.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days following application for scouting activities in camelina.

FOR SALE FOR USE ON GROUP 9 – CUCURBIT VEGETABLES including:

citron melon; cucumber; gherkin; edible gourd (hyotan, cucuzza); Chinese okra; Chinese cucumber; muskmelon hybrids and or cultivars of Cucumis melo including true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon; pumpkin; summer squash including crookneck

squash, scallop squash, straightneck squash, vegetable marrow, and zucchini; winter squash including butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash; watermelon including hybrids and/or varieties of *Citrullus lanatus*.

DO NOT APPLY BY AIR.

For the control of grassy weeds listed on the label as well as volunteer cereals, corn, and quackgrass, apply ASSURE® II Herbicide as a single post-emergent spray at a rate of 0.38 L/ha to 0.75 L/ha with a recommended surfactant (MERGE* ,SURE-MIX®) at 5 litres per 1000 litres of spray (0.5% v/v), LI 700 at 0.25-0.5% v/v or Liberate™ Adjuvant at 0.5% v/v.. See “Mixing Instructions” section of the ASSURE® II Herbicide label booklet.

Do not apply within 30 days of harvest.

Make one application per year when the crop is at the 2-6 leaf stage.

Apply at the labelled leaf stage of grassy weeds.

Use ground equipment only. Use in a minimum of 100 litres of water/ha.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Refer to the appropriate sections of the ASSURE® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precaution instructions, and/or mixing instructions.

FOR SALE FOR USE ON SASKATOON BERRIES

For the control of grassy weeds listed on the label, apply ASSURE® II Herbicide as a single post-emergent broadcast spray directed at the ground, at a rate of 0.38 L/ha to 0.75 L/ha with a recommended surfactant at 5 litres per 1000 litres of spray (0.5% v/v). See “Mixing instructions” section of the Assure® II Herbicide label.

Use ground application only. Use a directed spray application to minimize the amount of spray coming into contact with the Saskatoon berries. Use a minimum of 100 litres of water/ha.

Do not apply within 41 days of harvest.

Refer to the appropriate sections of the Assure® II Herbicide label booklet for a complete list of grassy weeds, their stages of control, as well as additional application and/or use precautions instructions, and/or mixing instructions.

SPRAY PREPARATION:

GROUND APPLICATION:

EQUIPMENT - SPRAY VOLUME

Apply the spray mixture with ground equipment only. Use a properly calibrated sprayer that will provide thorough coverage of the weeds with the spray. Apply a minimum of 100 litres per hectare total spray volume. Use flat fan nozzles. **DO NOT USE FLOOD JET NOZZLES.**

Use 50 mesh screens or larger. A spray pressure of 210-275 kPa is recommended. Under heavy weed pressure, use increased volumes up to 400 litres total spray volume per hectare.

Avoid overlapping. Shut off spray booms while starting, turning, slowing or stopping to prevent over application.

Use spray preparation of ASSURE® II Herbicide within 24 hours or product degradation may occur. If spray preparation is left without agitation, thoroughly agitate before using.

Do not apply when environmental conditions such as wind speed, temperature, relative humidity, etc. are favourable for drift to occur.

Do not apply to terrain where there is a potential for surface run-off to enter aquatic systems.

NOTE:

Extreme care must be taken to prevent drift to desirable plants or non-target agricultural land.

AERIAL APPLICATION: (Only for ASSURE II Herbicide used alone)

Apply only by fixed-wing or rotary aircraft equipment, which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed. Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions:

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application. The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label. All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly. Do not use human flaggers.

Product Specific Precautions:

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3925 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this specific product must meet and/or conform to the following:

Apply a minimum of 25 L of spray volume per hectare.

Apply a maximum of 50 L of spray volume per hectare.

MIXING INSTRUCTIONS:

1. Make sure that spray tank is thoroughly cleaned before mixing.
2. Fill tank half full with water. KEEP AGITATOR RUNNING.
3. If tank mixing ASSURE[®] II Herbicide with another herbicide, use the following sequence:
 - a) MUSTER[®] Herbicide or PINNACLE[®] Toss-N-Go[®] Herbicide, CLASSIC[®] Herbicide or RELIANCE[™] STS[™] Toss-N-Go[®] Herbicide

- b) BASAGRAN* FORTE Herbicide
- c) Liberty 150 SN Herbicide
- d) ASSURE® II Herbicide
- e) Slowly add MERGE* , SURE-MIX™, LI 700 or Liberate™ Adjuvant

Ensure that the herbicide is completely mixed before proceeding to the next step.

4. Add the rest of the required water to the tank. Mix well before applying to the crop.

On repeat tank loads, ensure that the amount of spray solution left in the tank from the previous load is less than 10% of volume about to be mixed.

Do not mix, load or clean spray equipment where there is a potential to contaminate wells or aquatic systems.

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact E.I du Pont Canada Company at 1-800-667-3925 for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by E.I du Pont Canada Company.

SPRAYER CLEAN-OUT:

Thoroughly clean all traces of ASSURE® II Herbicide from application equipment immediately after use. Flush tank, pump, hoses, and boom with several changes of water after removing nozzle tips and screens (clean these parts separately). Failure to thoroughly clean the equipment may result in injury to subsequently sprayed grass crops.

USE PRECAUTIONS:

- Do not apply to soybeans within 80 days of harvest.
- Do not apply to canola within 64 days of harvest.
- Do not apply to flax within 82 days of harvest.
- Do not apply to lentils or peas (field and processing) within 65 days of harvest.
- Do not apply to sunflowers within 60 days of harvest.
- Do not apply ASSURE® II Herbicide to plants stressed by severe conditions such as drought, low fertility, or cool weather as control of weeds may be reduced.
- Do not apply ASSURE® II Herbicide to crops stressed by severe conditions such as drought, low fertility, saline soils, water logged soils (soils at or near field capacity), disease or insect damage as crop injury may result.
- Drought, disease or insect damage following application may also result in crop injury.
- Rainfall within 1 hour of application may reduce effectiveness of the spray.
- Avoid drift to other crops and non-target areas. Grass crops such as corn and wheat etc. are highly sensitive to ASSURE® II Herbicide.
- Do not tank mix ASSURE® II Herbicide with any other pesticides, fertilizer, or additive except as directed in this label.
- Do not contaminate irrigation water.

CAUTION:

Do not graze the treated crops or cut for hay; sufficient data are not available to support such use.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca.

RESISTANCE-MANAGEMENT RECOMMENDATIONS:

For resistance management, ASSURE® II Herbicide is a Group 1 herbicide. Any weed population may contain or develop plants naturally resistant to ASSURE® II Herbicide and other Group 1 herbicides. The resistance biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- ◆ Where possible rotate the use of ASSURE® II Herbicide or other Group 1 herbicides with different groups when such use is permitted.
- ◆ Use tank mixtures with herbicides from a different group when such use is permitted.
- ◆ Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- ◆ Monitor treated weed populations for resistance development.
- ◆ Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- ◆ Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- ◆ For further information or to report suspected resistance, contact your local DuPont representative or the DuPont hotline at 1-800-667-3925 for further information.

STORAGE:

Store product in original container only, away from fertilizer, seed, food or feed. Not for use or storage in or around the home. Keep container closed. DO NOT FREEZE.

DISPOSAL:

For recyclable containers

Disposal of Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For returnable containers

Disposal of Containers:

Do not use this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For containers that can be refilled for the user by the distributor/dealer

Disposal of Containers:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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*All other products mentioned are trademarks of their respective companies.

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Ref. 130000023960

This SDS adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DuPont™ Assure® II Herbicide
Tradename/Synonym : DPX-79376
Assure Pro
Assure Plus
B10054988
Quizalofop P-ethyl: Ethyl(R)-2-[4-(6-chloroquinoxalin-2-yl
oxy)- phenoxy]propionate

SDS Number : 130000023960

Product Use : Herbicide
Manufacturer : E.I. du Pont Canada Company
P.O. Box 2200, Streetsville
Mississauga, ON
L5M 2H3
Canada

Product Information : 1-800-387-2122
Medical Emergency : 1-800-441-3637 (24 hours)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Harmful if swallowed, inhaled or absorbed through skin.

Potential Health Effects

Skin

N-Methyl-2-pyrrolidone : May cause skin irritation. May cause: Discomfort, itching, redness, or swelling..

Eyes

Quizalofop p-ethyl : May cause: slight irritation, tearing, Blurred vision.



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N-Methyl-2-pyrrolidone : Causes eye irritation. May cause:, Pain, tearing, swelling, redness, or temporary visual impairment..

Inhalation

N-Methyl-2-pyrrolidone : Causes respiratory tract irritation. May cause:, Cough, sneezing, runny nose, sore throat, or shortness of breath..

Repeated exposure

N-Methyl-2-pyrrolidone : May cause harm to the unborn child.

Target Organ

N-Methyl-2-pyrrolidone : Respiratory Tract

Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Quizalofop p-ethyl	100646-51-3	10.3 %
Other Ingredients		89.7 %

Includes percentages of the following:

N-Methyl-2-pyrrolidone	872-50-4	<8 %
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SECTION 4. FIRST AID MEASURES

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- Skin contact : Take off all contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- Eye contact : Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
- Inhalation : Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
- Ingestion : Call a poison control center or doctor for treatment advice. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.
- General advice : Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
For medical emergencies involving this product, call toll free 1-800-441-3637. See Label for Additional Precautions and Directions for Use.
- Notes to physician : Probable mucosal damage may contraindicate the use of gastric lavage. Contains petroleum distillate. Vomiting may cause aspiration pneumonia.

SECTION 5. FIREFIGHTING MEASURES

Flammable Properties

- Flash point : 98.9 °C (210.0 °F) closed cup
Method : Setaflash closed cup - SCC

- Suitable extinguishing media : Water spray, Foam, Dry chemical, Carbon dioxide (CO₂)

- Unsuitable extinguishing media : High volume water jet, (contamination risk)

- Firefighting Instructions : Wear full protective clothing and self-contained breathing apparatus. Evacuate personnel and keep upwind of fire. (on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers/tanks with water spray.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

- Safeguards (Personnel) : Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Use personal protective equipment.
- Spill Cleanup : Dike spill.
Sweep up and shovel into suitable containers for disposal.
If spill area is on ground near valuable plants or trees, remove top 2 inches of soil after initial cleanup.
Dispose of in an approved container.
- Accidental Release Measures : Prevent material from entering sewers, waterways, or low areas.
Never return spills in original containers for re-use. Dispose of in accordance with local regulations.

SECTION 7. HANDLING AND STORAGE

- Handling (Personnel) : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/PPE immediately if material gets inside. Wash thoroughly and put on clean clothing. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
- Handling (Physical Aspects) : Combustible
Keep away from heat and sources of ignition.
- Storage : Store in original container. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place. Keep out of the reach of children.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Engineering controls : Use only with adequate ventilation. Keep container tightly closed. When handlers use closed systems, enclosed cabs, or aircraft in a manner that



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meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

Personal protective equipment

- Skin and body protection** : Applicators and other handlers must wear:
 Long sleeved shirt and long pants
 Chemical resistant gloves, such as barrier laminate or Viton
 Shoes plus socks
 Protective eyewear
 PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:
 Coveralls
 Chemical resistant gloves, such as barrier laminate or Viton
 Shoes plus socks
 Protective eyewear

- Protective measures** : Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Exposure Guidelines

Exposure Limit Values

TLV	(ACGIH)	200 mg/m3	TWA	Non-aerosol. as total hydrocarbon vapor
		Remarks		
		P: Application restricted to conditions in which there are negligible aerosol exposures.		
AEL *	(DuPont)	100 ppm	8 & 12 hr. TWA	
N-Methyl-2-pyrrolidone AEL *	(DuPont)	5 ppm	8 & 12 hr. TWA, Skin	
Quizalofop p-ethyl AEL *	(DuPont)	1 mg/m3	12 hr. TWA Total dust.	

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AEL *	(DuPont)	0.5 mg/m3	12 hr. TWA Respirable dust.
AEL *	(DuPont)	2 mg/m3	8 hr. TWA Total dust.
AEL *	(DuPont)	1 mg/m3	8 hr. TWA Respirable dust.

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: liquid
Color	: dark amber
Odor	: aromatic, hydrocarbon-like
pH	: 5 - 7 (1% solution in water)
Oxidizing Substance	: The product is not oxidizing.
Specific gravity	: 1.02
Water solubility	: emulsifiable

SECTION 10. STABILITY AND REACTIVITY

Stability	: Stable at normal temperatures and storage conditions.
Conditions to avoid	: Heat, flames and sparks.
Incompatibility	: None reasonably foreseeable.
Hazardous reactions	: Heating can release vapours which can be ignited. Vapours may form explosive mixture with air. Polymerization will not occur.


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SECTION 11. TOXICOLOGICAL INFORMATION
DuPont™ Assure® II Herbicide

Inhalation 4 h LC50	:	2.6 - 4.4 mg/l , Rat
Dermal LD50	:	> 2,000 mg/kg , Rabbit
Oral LD50	:	5,900 mg/kg , Rat
Skin irritation	:	Skin irritation, Rabbit
Eye irritation	:	Risk of serious damage to eyes., Rabbit
Sensitisation	:	Did not cause sensitisation on laboratory animals., Guinea pig
Further information	:	Information given is based on data on the components and the toxicology of similar products.

Quizalofop p-ethyl

Repeated dose toxicity	:	Oral - feed Mouse 90 d Liver effects
Carcinogenicity	:	Animal testing did not show any carcinogenic effects. Not classifiable as a human carcinogen.
Reproductive toxicity	:	No toxicity to reproduction
Teratogenicity	:	Animal testing showed no developmental toxicity.

N-Methyl-2-pyrrolidone

Repeated dose toxicity	:	Oral Rat
		No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification., Reduced body weight gain
		Inhalation Rat
		No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification., Respiratory irritation



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Dermal
Rabbit

No toxicologically significant effects were found.

- Carcinogenicity : Not classifiable as a human carcinogen.
Overall weight of evidence indicates that the substance is not carcinogenic.
- Reproductive toxicity : Presumed human reproductive toxicant
Animal testing showed effects on reproduction at levels equal to or above those causing parental toxicity.
Reduced fertility
- Teratogenicity : Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.
Reduced embryo-foetal viability
Foetal malformations

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Quizalofop p-ethyl

- 96 h LC50 : Oncorhynchus mykiss (rainbow trout) 0.72 mg/l
- 72 h ErC50 : Pseudokirchneriella subcapitata (green algae) 0.021 mg/l
- 48 h EC50 : Daphnia magna (Water flea) 51.9 mg/l
- 21 d : NOEC Daphnia magna (Water flea) 0.787 mg/l

N-Methyl-2-pyrrolidone

- 96 h LC50 : Oncorhynchus mykiss (rainbow trout) > 500 mg/l
- 72 h ErC50 : Desmodesmus subspicatus (green algae) 600.5 mg/l
- 72 h NOEC : Desmodesmus subspicatus (green algae) 125 mg/l
- 21 d : NOEC Daphnia magna (Water flea) 12.5 mg/l OECD Test Guideline 211



DuPont™ Assure® II Herbicide

Version 2.2

Revision Date 03/24/2017

Ref. 130000023960

Environmental Fate

N-Methyl-2-pyrrolidone

Biodegradability : Biodegradable 73 % OECD Test Guideline 301C

Bioaccumulation : Accumulation in aquatic organisms is unlikely.

Additional ecological information : Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal : Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container disposal: : Container Refilling and Disposal:
Refer to the product label for instructions.
Do not transport if this container is damaged or leaking.

SECTION 14. TRANSPORT INFORMATION

IATA_C	UN number	: 3334
	Proper shipping name	: Aviation regulated liquid, n.o.s. (Quizalofop p-ethyl)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9MI
IMDG	UN number	: 3082
	Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Quizalofop p-ethyl)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
	Marine pollutant	: yes (Quizalofop p-ethyl)



DuPont™ Assure® II Herbicide

Version 2.2

Revision Date 03/24/2017

Ref. 130000023960

Not regulated by DOT/49 CFR unless shipped in bulk package or by water.
Not regulated by TDG when transported solely on land by road or railway vehicle.

SECTION 15. REGULATORY INFORMATION

PCP Registration # : 25462
Remarks : Regulated under the Pest Control Products Act - WHMIS exempt.

SECTION 16. OTHER INFORMATION

MSDS preparation date : 03/24/2017

™ Trademark of E.I. du Pont de Nemours and Company.
® Registered trademark of E.I. du Pont de Nemours and Company

Contact person : E.I. DuPont Canada Company, Mississauga, Ontario, L5M 2H3

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.

GROUP	14	HERBICIDE
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AUTHORITY® 480 HERBICIDE

COMMERCIAL

(Agricultural)

**Suspension Concentrate
Flowable**

For Use on Chickpeas, Field Pea, Flax, Sunflower, Soybeans, Wheat (Spring and Durum), Tame Mustard, Asparagus, Fababean, Mint, Strawberry, Horseradish, Brassica, Head and Stem (Crop Group 5-13) (Transplants only), Brassica, Leafy Greens (Crop Sub-Group 4-13b), Tomato (Transplants only), Tree Nuts (Crop Group 14), Grapes and Berries (Crop Group 13-07) and Apples

ACTIVE INGREDIENT: Sulfentrazone..... 480 g/L
Contains Petroleum Distillate

Contains o-phenylphenol (present as sodium o-phenylphenol tetrahydrate) at 0.032% as a preservative

REGISTRATION NUMBER 29012
PEST CONTROL PRODUCTS ACT

READ THE LABEL AND BOOKLET BEFORE USING



Net Contents: 1.95 L - Bulk

FMC of Canada Limited
6755 Mississauga Road, Suite 204
Mississauga, ON L5N 7Y2
1-833-362-7722

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

Take container, label or product name and the Pest Control Product Registration Number with you when seeking medical attention.

You may also contact **1-800-331-3148** for emergency medical treatment information.

TOXICOLOGICAL INFORMATION

Treat Symptomatically. Contains petroleum distillate – vomiting may cause aspiration pneumonia.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

Hazards to Humans and Domestic Animals

CAUTION

Harmful if inhaled, swallowed, or absorbed through skin. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes or clothing.

Apply only to agricultural crops when the potential for drift to areas of human habitation and human activity, such as houses, cottages, schools and recreational areas, is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Wear a long-sleeved shirt, long pants, chemical-resistant gloves made of waterproof material such as polyethylene or polyvinyl chloride, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Remove clothing immediately if pesticide gets inside. Then bathe thoroughly and put on clean clothing.

ENVIRONMENTAL PRECAUTIONS

Sulfentrazone is persistent and may carryover. It is recommended that any products containing sulfentrazone not be used in areas treated with this product during the previous season.

AUTHORITY® 480 Herbicide used according to the label directions is known to leach through soil into groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. **DO NOT** use on coarse soils classified as sand which have less than 1% organic matter.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation, drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Toxic to small wild mammals.

This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms.

Toxic to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

STORAGE

STORE ABOVE 5°C TO KEEP PRODUCT FROM FREEZING. If frozen, thaw before use. If solid crystals are observed, warm material to above 15 °C by placing container in warm location. Shake or roll container periodically to re-dissolve solids.

Do not use or store near heat or open flame.

Store in original containers only. Store containers in a dry location. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

To prevent contamination, store this product away from food or feed.

DISPOSAL

For refillable containers:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For returnable containers:

Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

For recyclable containers:

Do not reuse this container for any purpose. This is a recyclable container and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the Provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

<p style="text-align: center;">IN CASE OF A MEDICAL EMERGENCY, CALL TOLL FREE, DAY OR NIGHT: 1-800-331-3148</p>
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AUTHORITY® is a registered trademark of FMC Corporation

GROUP

14

HERBICIDE

AUTHORITY® 480 HERBICIDE

COMMERCIAL

(Agricultural)

**Suspension Concentrate
Flowable**

For Use on Chickpeas, Field Pea, Flax, Sunflower, Soybeans, Wheat (Spring and Durum), Tame Mustard, Asparagus, Fababean, Mint, Strawberry, Horseradish, Brassica, Head and Stem (Crop Group 5-13) (Transplants only), Brassica, Leafy Greens (Crop Sub-Group 4-13b), Tomato (Transplants only), Tree Nuts (Crop Group 14), Grapes and Berries (Crop Group 13-07) and Apples

ACTIVE INGREDIENT: Sulfentrazone..... 480 g/L
Contains Petroleum Distillate

Contains o-phenylphenol (present as sodium o-phenylphenol tetrahydrate) at 0.032% as a preservative

REGISTRATION NUMBER 29012
PEST CONTROL PRODUCTS ACT

READ THE LABEL AND BOOKLET BEFORE USING



CAUTION

POISON

Net Contents: 1.95 L - Bulk

FMC of Canada Limited
6755 Mississauga Road, Suite 204
Mississauga, ON L5N 7Y2
1- 833-362-7722

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GENERAL INFORMATION

SECTION 1: NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

SECTION 2: PRODUCT INFORMATION

AUTHORITY® 480 Herbicide is a selective soil applied herbicide for the control of wild buckwheat, kochia, lamb's-quarters, redroot pigweed, cleavers, Powell pigweed, Eastern black nightshade, common waterhemp, smooth crabgrass, large crabgrass, yellow woodsorrel, common groundsel and common purslane in chickpeas, field peas, flax, sunflower, soybeans, wheat (spring and durum), mustard, asparagus, fababean, mint, strawberry, horseradish, brassica, head and stem (Crop Group 5-13), brassica, leafy greens (Crop Sub-Group 4-13b), fruiting vegetables (Crop Group 8-09) (transplants only), tree nuts (Crop Group 14), grapes and berries (Crop Group 13-07) and apples.

AUTHORITY® 480 Herbicide is formulated as a flowable (suspension concentrate) containing 480 grams of the active ingredient, sulfentrazone, per litre, intended for dilution with water for application.

AUTHORITY® 480 Herbicide is taken up by the plant roots and shoots.

Observe all instructions, mixing directions, application precautions and other label information of AUTHORITY® 480 Herbicide.

For information regarding the use of this product, visit www.fmccrop.ca

SAFETY AND HANDLING

SECTION 3: PROPER HANDLING INSTRUCTIONS

AUTHORITY® 480 Herbicide may not be mixed or loaded within 15 meters of any wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams or rivers, and natural or impounded lakes and reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pads or properly diked mixing/loading areas.

Operations that involve mixing, loading, rinsing or washing of this product into or from pesticide handling or application equipment or containers within 15 metres of any well, are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or wash water, and rainwater that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self-contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at

a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above specific minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading site. Provinces may have in effect additional requirements regarding wellhead setbacks and operational containment.

AUTHORITY® 480 Herbicide must be used in a manner which will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

SECTION 4: FIRST AID AND TOXICOLOGICAL INFORMATION

FIRST AID

<p>If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.</p>

<p>If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.</p>

<p>If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.</p>

<p>If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.</p>

Take container, label or product name and the Pest Control Product Registration Number with you when seeking medical attention.

You may also contact **1-800-331-3148** for emergency medical treatment information.

TOXICOLOGICAL INFORMATION

Treat Symptomatically. Contains petroleum distillate – vomiting may cause aspiration pneumonia.

SECTION 5: PRECAUTIONS, PROTECTIVE CLOTHING AND EQUIPMENT

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN
Hazards to Humans and Domestic Animals

Harmful if inhaled, swallowed, or absorbed through skin. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes or clothing.

Apply only to agricultural crops when the potential for drift to areas of human habitation and human activity, such as houses, cottages, schools and recreational areas, is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Wear a long-sleeved shirt, long pants, chemical-resistant gloves made of waterproof material such as polyethylene or polyvinyl chloride, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Remove clothing immediately if pesticide gets inside. Then bathe thoroughly and put on clean clothing.

SECTION 6: ENVIRONMENTAL PRECAUTIONS

Sulfentrazone is persistent and may carryover. It is recommended that any products containing sulfentrazone not be used in areas treated with this product during the previous season.

AUTHORITY® 480 Herbicide used according to the label directions is known to leach through soil into groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. **DO NOT** use on coarse soils classified as sand which have less than 1% organic matter.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation, drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Toxic to small wild mammals.

This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms.

Toxic to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

SECTION 7: STORAGE

STORE ABOVE 5°C TO KEEP PRODUCT FROM FREEZING. If frozen, thaw before use. If solid crystals are observed, warm material to above 15 °C by placing container in warm location. Shake or roll container periodically to re-dissolve solids.

Do not use or store near heat or open flame.

Store in original containers only. Store containers in a dry location. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

To prevent contamination, store this product away from food or feed.

SECTION 8: DISPOSAL

For refillable containers:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For returnable containers:

Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

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For information on disposal of unused, unwanted product, contact the manufacturer or the Provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

<p style="text-align: center;">IN CASE OF A MEDICAL EMERGENCY, CALL TOLL FREE, DAY OR NIGHT: 1-800-331-3148</p>
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DIRECTIONS FOR USE

SECTION 9: CROPS AND WEEDS

SECTION 9.1: CROPS

AUTHORITY® 480 HERBICIDE may be applied to pre-plant or pre-emergent to, chickpeas, field peas, flax, sunflower, soybeans, wheat (spring and durum), mustard, asparagus, fababean, mint, strawberry, horseradish, brassica, head and stem (Crop Group 5-13), brassica, leafy greens (Crop Sub-Group 4-13b), fruiting vegetables (Crop Group 8-09) (transplants only), tree nuts (Crop Group 14), grapes and berries (Crop Group 13-07) and apples.

AUTHORITY® 480 Herbicide does not control emerged weeds.

SECTION 9.2: WEEDS CONTROLLED

When used as directed, AUTHORITY® 480 Herbicide will provide control of the listed weeds.

Use rate (L/ha)	Weeds controlled
0.219	Kochia
0.292	Above weeds plus: Redroot pigweed Lamb's-quarters Wild buckwheat Eastern black nightshade Common waterhemp Smooth crabgrass Large crabgrass Yellow woodsorrel Common groundsel Cleavers (suppression) Powell pigweed Common purslane

Rates of Application

AUTHORITY® 480 Herbicide needs to be applied at the following rates of application (milliliters of product) according to soil texture, organic matter content and pH.

Rates of Application for AUTHORITY® 480 Herbicide

Percent (%) Organic Matter	Application by Soil Type (mL of AUTHORITY® 480 Herbicide per hectare)	
	Medium	Fine
< 1.5	219 -292	--*
1.5 - 3.0	219 -292	219 -292
> 3.0 to <6.0	219 -292	219 -292

Use the higher rates within the rate range for soils with pH less than 7.0 and organic matter greater than 3%.

Do not apply to soils classified as coarse-textured soils.

*Do not apply in fine textured soils with less than 1.5% organic matter.

Do not apply in any type of soils with an organic matter content greater than 6%.

Do not use on soils with a pH of 7.8 or greater.

SECTION 9.3: SPECIFIC CROP INFORMATION

SECTION 9.3.1 FIELD CROPS

CHICKPEAS, FIELD PEAS, FLAX, SUNFLOWER, FABABEAN, SOYBEANS

Make one pre plant or pre emergence application every other year. Apply in 100 L of water per ha.

WHEAT (SPRING AND DURUM)

Applications

Make one pre-plant or pre-emergence application at a **maximum rate of 219 mL/ha** every other year for kochia control. Apply in a minimum of 100 L of water per ha.

Restrictions

DO NOT apply AUTHORITY® 480 Herbicide (or any other product containing sulfentrazone) to spring wheat if an application of FOCUS® Herbicide (or any other product containing pyroxasulfone) was applied in the previous fall.

MINT

Dormant Applications

Apply AUTHORITY® 480 Herbicide to established stands of dormant mint after spring land cultivation has been completed and before emergence of new mint growth.

Apply AUTHORITY® 480 Herbicide in tank-mixtures with a registered burndown herbicide to control emerged weeds at the time of application.

AUTHORITY® 480 Herbicide may also be applied in tank mixtures with other products registered for use in mint.

New Planting Applications

AUTHORITY® 480 Herbicide may be applied to new mint plantings preemergence to the weeds and mint. The rate of application should be reduced approximately twenty-five percent of the rate listed for established plantings for particular soil characteristics. Refer to AUTHORITY® 480 Herbicide Use Rate Table for the appropriate use rate for the soil type and organic matter content.

Level of weed control will be reduced with the application of AUTHORITY® 480 Herbicide at the reduced rate in new mint plantings.

Precautions

Applications made to mint that has emerged will result in severe injury to exposed plant tissue.

Apply only to healthy mint fields. Applications to mint under stress from disease, pests and cultural or environmental conditions may result in crop injury.

Moisture in the form of rainfall or overhead irrigation is required after application to activate the herbicide

Restrictions

Apply AUTHORITY® 480 Herbicide only to dormant mint or new mint plantings before new growth emerges.

SECTION 9.3.2 FRUITS AND VEGETABLES

ASPARAGUS

Applications

Apply AUTHORITY® 480 Herbicide as a broadcast treatment to crowns established for one or more years. Apply in the spring before the crop and weeds emerge. AUTHORITY® 480 Herbicide should be applied in 100 to 400 litres of finished spray per hectare.

Restrictions

Do not apply within 14 days prior to harvest.

STRAWBERRY

Applications

AUTHORITY® 480 Herbicide may be applied in the spring or fall as a broadcast or banded dormancy treatment to strawberry. Applications should be made with ground sprayers at 200 – 400 L/ha. A single application may be made using no more than 0.292 L/ha of AUTHORITY® 480 Herbicide per hectare.

Spring applications may be made during dormancy to established plantings only.

Precautions

Applications to strawberry plants with emerged growth are not recommended due to leaf burning and possible stand loss.

Restrictions

Do not apply within 70 days of harvest.

Do not use flood irrigation to activate this product.

Do not apply to saturated soils.

If soils are wet, do not apply if heavy rainfall is predicted within 24 hours.

Do not apply to frozen soils.

BRASSICA, HEAD AND STEM (Crop Group 5-13) (Transplants only) (Broccoli, Brussels sprouts, Chinese (napa) cabbage, Cabbage, Cauliflower)

Early Preplant (Spring Application)

AUTHORITY[®] 480 Herbicide may be applied in the spring preceding the growing season as a broadcast or banded treatment up to 72 hours prior to transplanting head and stem brassica. AUTHORITY[®] 480 Herbicide should be applied to the harvested crop stubble or soil surface without incorporation. Moisture will move and activate the product into the soil. Do not mechanically incorporate after application as this may destroy the herbicide barrier and weed escapes can occur. Do not apply to frozen soils to prevent AUTHORITY[®] 480 Herbicide runoff from rain that may occur following application. AUTHORITY[®] 480 Herbicide may be tank mixed with other burndown herbicides to control emerged weeds or with residual soil herbicides that are labeled for use on head and stem brassica. Use the listed rates of burndown herbicides in combination with AUTHORITY[®] 480 Herbicide, or split applications as needed.

BRASSICA, LEAFY GREENS (Crop Sub-group 4-13B)

Broccoli raab, Chinese (bok choy) cabbage, collards, kale, mizuna, mustard greens, mustard spinach, rape greens, arugula, Chinese broccoli

Early Preplant and Preemergence (Spring Application)

AUTHORITY[®] 480 Herbicide may be applied in the spring preceding the growing season up to 72 hours prior to planting leafy brassica. AUTHORITY[®] 480 Herbicide should be applied to the harvested crop stubble or soil surface without incorporation. Moisture will move and activate the product into the soil. Do not mechanically incorporate after application as this may destroy the herbicide barrier and weed escapes can occur. Do not apply to frozen soils to prevent AUTHORITY[®] 480 Herbicide runoff from rain that may occur following application. AUTHORITY[®] 480 Herbicide may be tank mixed with other burndown herbicides to control emerged weeds in the spring or with residual soil herbicides that are labeled for use on cabbage. Use the listed rates of burndown herbicides in combination with AUTHORITY[®] 480 Herbicide, or split applications as needed.

TOMATO (Transplants only)

Preplant Applications

AUTHORITY[®] 480 Herbicide may be applied preemergence as a broadcast or banded treatment on transplanted tomato. Applications must be made prior to transplant. AUTHORITY[®] 480 Herbicide can be tank mixed with other burndown or soil-applied herbicides labeled for use on tomatoes. Use the listed rates of burndown herbicides or split applications as needed.

Early crop injury may be observed, but the final yield should not be affected.

The Preharvest Interval of 19 days is required for transplants of tomato.

HORSERADISH

AUTHORITY® 480 Herbicide may be applied as a preplant or preemergent treatment by ground in a minimum of 150 L per ha of finished spray.

Early Preplant (Spring Application)

AUTHORITY® 480 Herbicide may be applied in the spring preceding the growing season to control or suppress weeds prior to or up to the planting of horseradish. AUTHORITY® 480 Herbicide should be applied to the harvested crop stubble or soil surface without incorporation. Moisture will move and activate the product into the soil. Do not mechanically incorporate after application as this may destroy the herbicide barrier and weed escapes may occur. Do not apply to frozen soils to prevent AUTHORITY® 480 Herbicide runoff from rain that may occur following application. AUTHORITY® 480 Herbicide may be tank mixed with other burndown herbicides to control emerged weeds or with residual soil herbicides that are labeled for use on horseradish. Use listed rates of burndown herbicides in combination with AUTHORITY® 480 Herbicide, or split applications as needed.

Pre-Emergence (PRE)

AUTHORITY® 480 Herbicide may be applied pre-emergence as a broadcast or banded treatment on horseradish. Applications should be made broadcast prior to planting, broadcast soon after planting but at least 5 days before crop emergence. AUTHORITY® 480 Herbicide may be applied as a banded treatment into the row middles after crop emergence. AUTHORITY® 480 Herbicide may be applied with other pesticides registered for use on horseradish.

Restrictions

Do not apply directly on the crop after the crop emerges or if the seedling sprouts are close to the soil surface.

Do not use on soils classified as sand, which have less than 1% organic matter.

SECTION 9.3.3 PERMANENT CROPS

TREE NUTS, GRAPES and BERRIES

Grapes: Wine, Raisin, Table and Juice, Amur river grape

Preharvest Interval: 3 days

Berries (Crop Group 13-07): aronia berry; bayberry; bearberry; bilberry; blackberry (including Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hullberry, lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora, mures deronce, nectarberry, Northern dewberry, olallieberry,

Orgeon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, Southern dewberry, tayberry, youngberry, zarzamora, and cultivars, varieties and/or hybrids of these); blueberry, highbush; blueberry, lowbush; buffalo currant; buffaloberry; Chilean guava; chokecherry; cloudberry; cranberry; currant, black; currant, red; elderberry; European barberry; gooseberry; honeysuckle, edible; huckleberry; jostaberry; Juneberry (Saskatoon berry); kiwifruit, fuzzy; kiwifruit, hardy; lingonberry; maypop; mountain pepper berries; mulberry; muntries; native currant; partridgeberry; pincherry; raspberry, black and red; schisandra berry; sea buckthorn; serviceberry; wild raspberry; cultivars, varieties, and/or hybrids of these

Preharvest interval: 3 days

Tree Nuts (Crop Group 14): Almond, Beech Nut, Brazil Nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert (Hazelnut), Hickory Nut, Macadamia Nut (Bush Nut), Pecan, Pistachio and Walnut (Black and English),

Preharvest Interval: 3 days

Apples:

Preharvest Interval: 14 days

APPLICATION INFORMATION

AUTHORITY® 480 Herbicide should be applied as a uniform broadcast soil application to orchard and vineyard floors and to berry beds and furrows or as a uniform band application directed to the base of the trunk in trees and vines and to the base of the berry and beds in berries to provide preemergence control of weeds.

For best control, AUTHORITY® 480 Herbicide should be applied when there are no weeds present or a postemergence herbicide is tank mixed to eliminate emerged weeds.

For broadcast applications, a single application of AUTHORITY® 480 Herbicide can be made every other year. The twelve-month period is considered to begin when the initial application of AUTHORITY® 480 Herbicide is applied.

For improved weed management, AUTHORITY® 480 Herbicide can be applied in a tank mixture with other preemergence and postemergence burndown herbicides. Do not tank mix with Chateau® herbicides (flumioxazin) or with other products containing sulfentrazone.

When applied as a banded treatment (50% band or less), refer to formula in chart for rate and volume in Section 10.1, General Application Information. AUTHORITY® 480 Herbicide may be applied once every other year.

A minimum of 100 L of spray solution per ha should be used to ensure uniform spray coverage. Nozzle selection should meet manufacturer's spray volume and pressure recommendations for preemergence and postemergence herbicide applications. The spray solution should have a pH between 5.0 and 9.0.

AUTHORITY® 480 Herbicide should only be applied to crops that have been established for one full growing season and are in good health and vigor. Avoid contact of the spray solution on the green bark of trunks of young vines and trees by wrapping the trunk with a nonporous wrap,

grow tubes, or wax containers which will keep the spray solution from coming in direct contact with the green tissue. Avoid direct or indirect spray contact with crop foliage and fruit.

Best results are obtained when the soil is moist at the time of application and the application will be followed by at least ½ inch of rainfall or sprinkler irrigation within two weeks after application. Applications should be timed to take advantage of normal rainfall patterns and cool temperatures, especially where drip or micro sprinkler irrigation is used which may not uniformly incorporate the herbicide.

Restrictions

- Use ground equipment only. Do not apply AUTHORITY® 480 Herbicide using airblast sprayers or by air. Do not apply using a mechanically pressurized handgun.
- Apply to crops that have been growing for at least one full year and are in good condition.
- Avoid direct or indirect spray contact to foliage and green bark (wrap trunk with non-porous wrap, grow tubes, or wax containers to keep spray solution off of green tissue).
- Do not apply to powdery soils or soils where wind may displace the soil, unless irrigation can be applied immediately after application.

WEED CONTROL INFORMATION

AUTHORITY® 480 Herbicide is a selective soil-applied herbicide for the control of susceptible broadleaf and grass weeds. Adequate moisture of at least 18 mm is required within 14 days after application for optimal control. If adequate rainfall is not received in a timely fashion, irrigate with a minimum of 18 mm of water. When activating moisture is delayed, a reduced level of weed control may occur. These escaped weeds can be removed using a burndown herbicide.

Tank mix AUTHORITY® 480 Herbicide with a burndown herbicide and use an appropriate adjuvant when weeds are present at the time of application. Refer to the tank mix partner's product label for the proper use rates by weed sizes.

Residual weed control may be reduced when AUTHORITY® 480 Herbicide is applied where heavy crop trash such as leaves and branches and /or weed residues exists. It is best to rake or blow off the leaves and trash when they fall and prior to the AUTHORITY® 480 Herbicide application.

Do not apply after petal fall unless using a hooded or shielded sprayer to ensure that the spray solution will not come in contact with the crop or foliage.

NOTE TO BUYER/USER: The DIRECTIONS FOR USE for this product for the use described below were developed by persons other than FMC of Canada Ltd. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. FMC of Canada Ltd. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold FMC of Canada Ltd. harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

DIRECTIONS FOR USE IN TAME MUSTARD

AUTHORITY® 480 Herbicide may be applied preplant or preemergence at a rate of 219 ml/ha to control kochia in tame mustard. AUTHORITY® 480 Herbicide can be applied prior to planting or up to 3 days after planting, but before seed germination. When applications after planting are delayed greater than 3 days, injury may occur if seeds are germinating.

Precautions

Do not apply to soils classified as sand containing less than 1% organic matter.
 Do not apply to soils with pH > 7.8.
 Crop injury may occur in years with greater than normal rainfall.

SECTION 9.4: TANK MIXES

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

FIELD PEAS

For volunteer canola and wild mustard control in field peas, tank-mix AUTHORITY® 480 Herbicide with Nu-Image Herbicide.

FOR USE IN THE BLACK AND GREY WOODED SOIL ZONE ONLY

Use rates of AUTHORITY® 480 (L/ha)	Use rates of Nu-Image Herbicides (L/ha)	Weeds controlled
0.219 - 0.292	0.070	Volunteer canola Wild mustard
Follow all label directions on the Nu-Image Herbicide product label including any adjuvants and tank-mix partners.		

FABABEAN, FIELD PEA AND SOYBEAN

Apply AUTHORITY® 480 Herbicide at 219-292 mL/ha plus EXPRESS® SG Herbicide at 15 g/ha, tank mixed with glyphosate (present as potassium salt, isopropylamine salt, ammonium salt) at 270 – 450 g ae/ha and adjuvant (where required) in a total spray volume of 100 L/ha. This tank mix will control weeds listed on this label, corresponding to the rate of AUTHORITY® 480 Herbicide applied, as well as those listed in the following table.

Fields treated with this tank mix can be seeded to fababean, field pea or soybean a minimum of 24 hours after application.

Tank Mix Partner	Application Rate	Application Stage	Weeds Controlled	Weeds Suppressed*
Express® SG + Glyphosate (present as potassium salt, isopropylamine salt, ammonium salt)	15 g/ha + 450 g ae/ha	Up to 8 cm	Canada fleabane, common ragweed, narrow leaved hawk's beard	Scentless chamomile
		Up to 15 cm	Dandelion, downy brome, flixweed, giant foxtail, green foxtail, hemp nettle, kochia, lady's thumb, lamb's-quarters, Persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats	
		Up to 3-leaf	Cow cockle, wild buckwheat	
		Rosette		Canada thistle, White cockle
Express® SG + Glyphosate (present as potassium salt, isopropylamine salt, ammonium salt) + Agral® 90	15 g/ha + 270 g ae/ha + 0.35% v/v	Any stage	Volunteer canola (including glyphosate-tolerant)	
		Seedlings and rosettes		Narrow leaved hawk's beard
		Up to 8 cm	Green foxtail, lady's thumb, stinkweed, volunteer barley, volunteer wheat, wild buckwheat (1-3 leaf), wild mustard, wild oats (1-3 leaf)	
		Up to 10 cm	Kochia, lamb's quarters	Redroot pigweed, Russian thistle
Express® SG	15 g/ha	Rosettes (non-	Dandelion (top	Canada thistle

Tank Mix Partner	Application Rate	Application Stage	Weeds Controlled	Weeds Suppressed*
+ Glyphosate (present as potassium salt, isopropylamine salt, ammonium salt)	+ 360 g ae/ha	flowering)	growth)	(top growth)
+ Agral® 90	+ 0.35% v/v			

*Weed suppression is a visual reduction in weed competition (reduced population or vigour) as compared to an untreated area. Degree of suppression will vary with size of weed and environmental conditions prior to and following treatment.

Injury to pulse crops may occur on coarse-textured soils, low in organic matter (less than 3%), or in fields with variable soils, gravelly areas, sandy areas or eroded knolls. Avoid planting pulse crops in soils containing more than 50% sand.

Do not use on soils with less than 3% organic matter.

Use the higher rates within the rate range for soils with pH less than 7.0.

Do not apply to soils classified as coarse-textured soils.

Do not apply in any type of soils with an organic matter content greater than 6%.

Do not use on soils with a pH of 7.8 or greater.

APPLICATION INFORMATION

PREEMERGENCE APPLICATION:

- AUTHORITY® 480 alone, or in the recommended tank-mixes, may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.
- Preemergence application may be made in all tillage systems (conventional, conservation, minimum, ridge, etc.).
- Rainfall and/or overhead sprinkler irrigation is necessary to move AUTHORITY® 480 Herbicide into the upper soil surface where weed seeds germinate.
- If adequate moisture is not received within 7 to 10 days after application and weeds begin to emerge from the soil, a light rotary hoeing or shallow incorporation (no deeper than 1.25 cm deep) will improve performance, minimize crop damage, activate chemical and prevent soil crusting.
- Dry weather conditions as well as excessive rainfall or irrigation following application may reduce weed control.
- Do not apply heavy irrigation immediately after application.

BAND APPLICATION:

- If a band application is desired, the chemical may be applied as described in Section 10.1 by using proportionally less AUTHORITY® 480 Herbicide per hectare:
- Weeds between treated bands should be removed by cultivating, as needed, using protective fenders to keep freshly turned soil off treated bands.

These Crop Specific Use directions are based upon the interactive effects of AUTHORITY® 480 Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity

on various weed species and tolerance among crops. The user is required to observe the instructions and guidance presented under General Application Instructions, General AUTHORITY® 480 Herbicide Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weeds Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with AUTHORITY® 480 Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on AUTHORITY® 480 Herbicide under specific local conditions.

SECTION 10: APPLICATION INFORMATION

SECTION 10.1: GENERAL APPLICATION INSTRUCTIONS

DO NOT apply using aerial application equipment.

DO NOT contaminate irrigation, drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

AUTHORITY® 480 Herbicide can be applied with conventional ground spraying equipment.

AUTHORITY® 480 Herbicide may be applied pre-plant or pre-emergence **AS A SINGLE GROUND APPLICATION**. AUTHORITY® 480 Herbicide can be applied prior to planting or up to 3 days after planting, but before seed germination. When applications after planting are delayed greater than 3 days, injury may occur if seeds are germinating. AUTHORITY® 480 Herbicide applied near or after crop emergence may cause severe injury to the crop. Do not make fall applications to a crop unless it is specifically recommended on this label.

Water must be used as the carrier for AUTHORITY® 480 Herbicide. Do not allow spray mixtures to sit overnight due to potential settling of product and difficulty in resuspending may occur. Avoid spray drift to adjacent plants as injury to other plants may occur.

Ground Application

Utilize a boom and nozzle sprayer or boomless ground sprayer equipped with the appropriate nozzles, spray tips and screens and adjusted to provide optimum spray distribution and coverage at the appropriate operating pressures. Utilize nozzles and pressures that produce a medium spray as classified by the American Society of Agricultural Engineers (ASAE) to avoid spray drift or inadequate foliar and soil coverage. Consult with spray nozzle manufacturer's charts to determine the correct nozzle and pressure combination required to achieve a medium spray. Utilize nozzles that produce minimal amounts of fine spray droplets to avoid spray drift or inadequate foliar and soil coverage. Do not exceed 175 kPa spray pressure unless otherwise required by the manufacturer of drift reducing nozzles or boomless application systems. Apply a minimum of 100 litres of finished spray per hectare by ground. Be aware that spray pattern overlaps and slower ground speeds while starting, stopping or turning while spraying may result in excessive application and subsequent crop response.

Band Application

When applied as a banded treatment (50% band or less), refer to formula in chart below for rate and volume. AUTHORITY® 480 Herbicide may be applied once every other year.

For band treatments, apply the broadcast equivalent rate and volume per ha. To determine these:

$$\frac{\text{Band width in centimetres}}{\text{Row width In centimeteres}} \times \text{Broadcast Rate Per hectare} = \text{Band rate per hectare}$$

$$\frac{\text{Band width in centimetres}}{\text{Row width In centimeteres}} \times \text{Broadcast Volume Per hectare} = \text{Band Volume per hectare}$$

Spray Drift Management

Minimizing spray drift at the application site is the responsibility of the applicator and the grower. The interaction of many equipment and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty.

Controlling Spray Droplet Size

Volume: Use high flow rate nozzles to apply the greatest practical spray volume. Nozzles with higher rated flow generally produce larger droplets.

Pressure: When higher flow rates are needed, use higher flow rate nozzles rather than increasing spray pressure. Do not exceed the nozzle manufacturer's recommended pressures. Lower pressure produces larger droplets in many types of nozzles.

Nozzle Type: Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles for ground applications.

Do not apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Consult with spray nozzle manufacturer's charts to determine the correct nozzle and pressure combination required to achieve a medium spray. Boom height must be 60 cm or less above the crop or ground.

Rainfall Requirement

All soil applications of AUTHORITY® 480 Herbicide require adequate rainfall for herbicidal activation. The ultimate amount of moisture, whether supplied by rainfall or irrigation, is dependent on several factors. These factors include but are not limited to existing soil moisture at application, soil type, organic matter and pH. In crop situations, dependent on rainfall, AUTHORITY® 480 Herbicide can await activating moisture for extended periods (10 to 14 days or longer) depending on the soil parameters described above. Once activated, AUTHORITY® 480 Herbicide will provide activity on existing weeds. Where irrigation is not available and rainfall has not provided activation, particularly for surface applications of AUTHORITY® 480 Herbicide, a shallow incorporation is recommended to initiate the process of activation with existing soil moisture. In circumstances where prolonged periods without rainfall or irrigation are not possible, alternative or additional weed management practices (cultivation or post-applied herbicides) may be required.

When activating moisture is received after dry conditions, AUTHORITY® 480 Herbicide may provide a reduced level of control of susceptible germinating weeds. Soil applications of AUTHORITY® 480 Herbicide must be made before crop seed germination to prevent injury to the emerging crop seedlings. When applications after planting are delayed, injury may occur if seeds are germinating or if they are located near the soil surface.

Mode of Action

Sulfentrazone, the active ingredient in AUTHORITY® 480 Herbicide, is a potent inhibitor of the enzyme Protoporphyrinogen Oxidase IX (Protox) required for the formation of chlorophyll. Inhibition of the PPO IX enzyme results in the liberation of singlet oxygen (O) that, in turn, disrupts cellular membranes and causes cellular leakage. The ultimate manifestation of the process is cellular death leading to plant death. The selective herbicidal activity of sulfentrazone is based on its greater affinity for the PPO IX enzyme in weed species versus crop plants.

Mechanism of Action

Following the application of AUTHORITY® 480 Herbicide to soil, germinating seeds and seedlings take up sulfentrazone from the soil solution. The amount of sulfentrazone in soil solution, and available for weed uptake, is determined primarily by soil type, organic matter and soil pH. Sulfentrazone adsorbs to the clay and organic matter fractions of soils effectively limiting the amount of active ingredient immediately available to control weeds. Soils typically increase in clay content through the series from coarse to fine as noted in the following Soil Classification Chart.

Soil Classification Chart

Coarse*	Medium	Fine
Sand	Sandy clay loam	Silty clay loam
Loamy sand	Sandy clay	Silty clay
Sandy loam	Loam	Clay loam
	Silt loam	Clay
	Silt	

Influence of Soil Type, Organic Matter and pH on AUTHORITY® 480 Herbicide Use Rates and Crop Response

Soil organic matter content can vary widely and independently of soil type and requires an accurate analysis of representative soil samples to determine its content. Soil pH also exerts a dramatic affect on sulfentrazone availability in the soil solution. As soil pH increases, sulfentrazone availability increases. Determining soil pH requires an accurate analysis of representative soil samples. ***DO NOT** apply to coarse soils classified as sand containing less than 1% organic matter.

The total amount of sulfentrazone available in solution, in any given soil, is determined by the interaction of soil type (primarily clay content), % organic matter and pH. The application timing (relative to the emergence of the crop and weeds) and amount of rainfall and/or irrigation received will ultimately determine, in conjunction with the soil parameters and pH, the amount of sulfentrazone in soil solution. It is important to note that AUTHORITY® 480 Herbicide can await activating moisture. However, diminished weed control may result due to the successive increase in weed growth versus timing of activation.

It is important to note that irrigation with highly alkaline water (high pH) following an AUTHORITY® 480 Herbicide soil application can also significantly increase the amount of sulfentrazone available, in the soil solution. Irrigation with water having a pH greater than 7.5 could result in adverse crop response. This response will ultimately depend on initial AUTHORITY® 480 Herbicide application rate, timing, amount and pH of irrigation water and sensitivity of the crop and its growth stage when irrigated. The risk of adverse crop response will lessen with the advances in growth stages among most crops.

Sulfentrazone is persistent and will last in the soils (carryover) for one to two years. DO NOT APPLY AUTHORITY 480 HERBICIDE TO FIELDS PREVIOUSLY TREATED WITH ANY SULFENTRAZONE-CONTAINING PRODUCT IN CONSECUTIVE YEARS (24 MONTHS). In case of drought in any of those years, a subsequent application of AUTHORITY® 480 Herbicide should be further delayed by the equivalent number of years in which drought occurred. AUTHORITY® 480 Herbicide requires one (1) to two (2) cm of rain or irrigation water to be effective. If adequate moisture from rainfall or irrigation is not received within 7 to 10 days of application, a shallow incorporation no deeper than 5 cm may be needed to obtain adequate weed control.

SECTION 10.2: BUFFER ZONES

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested

areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:	
		Freshwater Habitat of	Terrestrial

		Depths:		Habitat
		Less than 1 m	Greater than 1 m	
Field sprayer*	Chickpea, Field Pea, Flax, Sunflower, Mustard, Asparagus, Strawberry, Soybean, Wheat (spring and durum), Mustard, Asparagus, Fababean, Mint, Strawberry, Horseradish, Brassica, Head and Stem (Crop Group 5-13), Brassica, Leafy Greens (Crop Sub-Group 4-13b), Fruiting Vegetables (Crop Group 8-09) (Transplants only), Tree Nuts (Crop Group 14), Grapes and Berries (Crop Group 13-07) and Apples	1	0	10

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labeled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labeled buffer zone can be reduced by 30%. Boom height must be 60 cm or less above the crop or ground.

SECTION 10.3: ROTATIONAL CROP GUIDELINES

The following table shows the minimum interval in months from the time of the last AUTHORITY 480 Herbicide application until AUTHORITY® 480 Herbicide treated soil can be replanted to the crops listed as follows.

Rotational crops and replant intervals for AUTHORITY® 480 Herbicide.

Rotational Crop	Replant Interval (Months)
Broccoli, cabbage, cauliflower, chickpea, faba bean, field pea, flax, horseradish, potatoes, soybean, sunflowers, tomato (transplants), tame mustard (low rate only), wheat (spring and durum; low rate only)	0
Winter wheat	4
Alfalfa, barley, canola, field corn, wheat (spring and durum; high rate)	12
Sweet and popcorn, lentils, sorghum	24

For crops listed in the rotational crop table, the minimum replant interval listed in the table must be observed. For crops not listed in the rotational crop table, A **MINIMUM ROTATIONAL CROP INTERVAL OF 36 MONTHS** must be observed, and a representative bioassay of the field must be conducted with the rotational crop and adequate soil moisture to evaluate potential crop sensitivity.

If there is a lack of adequate or normal soil moisture due to drought conditions following an application of **AUTHORITY® 480 Herbicide**, the minimum rotational crop interval listed in the table must be extended for one additional year and a representative bioassay of the field must be conducted with the potential rotational crop and adequate soil moisture to determine the crop sensitivity to **AUTHORITY® 480 Herbicide**.

REPLANTING INSTRUCTIONS

If initial planting of labeled crops fails to produce a stand, only labeled crops for **AUTHORITY® 480 Herbicide**, may be planted. **DO NOT** retreat field with **AUTHORITY® 480 Herbicide**. Do not plant treated fields with any crop at intervals that are inconsistent with the Rotational Crop Guidelines on this label. When replanting use minimum soil tillage to preserve the herbicide barrier and achieve maximum weed control.

SECTION 11: RESTRICTED ENTRY INTERVAL

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

IMPORTANT

- **DO NOT** apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your area, consult the provincial agency responsible for pesticide regulation.
- **DO NOT** apply more than the allowed amount per hectare per twelve-month period. The twelve-month period is considered to begin upon the initial application.

SECTION 12: MIXING AND LOADING INSTRUCTIONS

Spray Tank Preparation

It is important that spray equipment is clean and free of existing pesticide deposits before using this product. Follow the spray tank clean out procedures specified on the label of product previously applied before adding **AUTHORITY® 480 Herbicide** to the tank.

Mixing and Loading Instructions

AUTHORITY® 480 Herbicide is a suspension concentrate intended for dilution with water. For best results, fill spray tank with one half of the volume of clean water needed for the area to be treated. Start the agitation system. Slowly add the **AUTHORITY® 480 Herbicide** to the spray tank. Complete filling the spray tank to the desired level. Continuous spray tank agitation is

required at all times to maintain a uniform spray solution. Make sure AUTHORITY® 480 Herbicide is thoroughly mixed before application.

Use the AUTHORITY® 480 Herbicide mixture immediately after mixing.

Do not store the sprayer overnight or for any extended period of time with the sulfentrazone spray mixture remaining in the tank.

Premixing AUTHORITY® 480 Herbicide spray solutions in nurse tanks is not recommended.

Tank Mixtures: Fill spray tank one-half to two-thirds full of water. With agitator operating, add the recommended amount of ingredients using the following order:

- **Wettable powders and dispersible granules**
- **Agitate tank mix thoroughly**
- **Micro-encapsulated suspensions**
- **Liquid flowables and suspensions**
- **Emulsifiable concentrate formulations**
 - Fill spray tank nearly full of water
- **Glyphosate formulations**
- **Surfactants**
 - Complete filling the spray tank to the desired level

SECTION 13: SPRAYER EQUIPMENT CLEANOUT

After spraying AUTHORITY® 480 Herbicide and before using sprayer equipment for any other applications, the sprayer must be thoroughly cleaned using the following procedure:

1. Drain sprayer tank, hoses, and spray boom. Use a high-pressure detergent wash to remove physical sediment and residues from the inside of the sprayer tank and thoroughly rinse. Then thoroughly flush all sprayer hoses, booms, and nozzles with clean water.
2. Prepare a sprayer cleaning solution by adding three litres of ammonia (containing at least 3% active) per 100 litres of clean water. Prepare sufficient cleaning solution to allow the operation of the spray system for a minimum of 15 minutes to thoroughly flush hoses, spray boom and spray nozzles.
3. Convenient and thorough cleaning of the sprayer can be achieved if the ammonia solution or fresh water is left in the spray tank, hoses, spray booms and spray nozzles overnight or during storage.
4. Drain the sprayer system. Rinse the tank with clean water and flush through the hoses, boom, and nozzles. Remove and clean spray tips and all strainers and screens separately in an ammonia solution.
5. Properly dispose of all cleaning solution and rinsate in accordance with provincial guidelines and regulations.

Do not drain or flush equipment on or near desirable trees or plants.

Do not contaminate any body of water including irrigation water that may be used on other plants or crops.

SECTION 14: RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, AUTHORITY® 480 Herbicide is a Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to AUTHORITY® 480 Herbicide and other Group 14 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of AUTHORITY® 480 Herbicide or other Group 14 herbicides within a growing season (sequence) or among growing seasons with different groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area, if possible, by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact FMC at www.fmccrop.ca

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Chateau® is a registered trademark of Valent USA Corporation
Agral® is a registered trademark of a Syngenta Group Company

SAFETY DATA SHEET
AUTHORITY® 480 HERBICIDE

SDS # : 1466-8-A
Revision date: 2019-01-25
Format: NA
Version 2.02



1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name AUTHORITY® 480 HERBICIDE

Formula code 6527-A

Other means of identification

Product Code(s) 1466-8-A

Synonyms SULFENTRAZONE (FMC 97285):
2',4'-dichloro-5'-(4-difluoromethyl-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl)
methanesulfonanilide (IUPAC name);
N-[2,4-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-
1,2,4-triazol-1-yl]phenyl] methanesulfonamide (CAS name)

Active Ingredient(s) Sulfentrazone

Chemical Family Triazolinones

Alternate Commercial Name Authority® 4 F; Boral™ 480 SC; Spartan™ 4F; Authority® Charge

PCP # 29012

Recommended use of the chemical and restrictions on use

Recommended Use: Herbicide

Restrictions on Use: Use as recommended by the label.

Supplier Address

FMC Corporation
2929 Walnut Street
Philadelphia, PA 19104
(215) 299-6000 (General Information)
msdsinfo@fmc.com (E-Mail General Information)

Emergency telephone number

For leak, fire, spill or accident emergencies, call:
1 800 / 424-9300 (CHEMTREC - U.S.A.)
1 703 / 741-5970 (CHEMTREC - International)
1 703 / 527-3887 (CHEMTREC - Alternate)

Medical Emergencies:
1 800 / 331-3148 (U.S.A. & Canada)
1 651 / 632-6793 (All Other Countries - Collect)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).


Specific target organ toxicity (repeated exposure)	Category 2
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GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Warning

Hazard Statements
H373 - May cause damage to organs through prolonged or repeated exposure



Precautionary Statements - Prevention

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response

P314 - Get medical advice/ attention if you feel unwell

Precautionary Statements - Disposal

P501 - Dispose of contents/container according to label directions

Hazards not otherwise classified (HNOC)

No hazards not otherwise classified were identified.

Other Information

Very toxic to aquatic life.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family Triazolinones.

Chemical name	CAS-No	Weight %
Sulfentrazone	122836-35-5	40
Propylene glycol	57-55-6	5-10
Oxirane, methyl-, polymer with oxirane, monobutyl ester	9038-95-3	1-5
Toluene	108-88-3	1-5

Synonyms are provided in Section 1.

4. FIRST AID MEASURES

Eye Contact Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact

lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for further treatment advice.

Skin Contact	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.
Inhalation	Move to fresh air. If person is not breathing, contact emergency medical services, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.
Ingestion	If swallowed, do not induce vomiting - seek medical advice. Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not induce vomiting or give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	Central nervous system effects.
Indication of immediate medical attention and special treatment needed, if necessary	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Carbon dioxide (CO ₂). Foam. Dry powder. Water spray.
Specific Hazards Arising from the Chemical	Thermal decomposition can lead to release of irritating and toxic gases and vapors.
Hazardous Combustion Products	Carbon oxides (CO _x), Nitrogen oxides (NO _x), Sulfur oxides, Hydrogen chloride, Hydrogen fluoride.
Explosion data	
Sensitivity to Mechanical Impact	No information available.
Sensitivity to Static Discharge	No information available.
Protective equipment and precautions for firefighters	As in any fire, wear self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Isolate and post spill area. Remove all sources of ignition. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.
Other	For further clean-up instructions, call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.
Environmental Precautions	Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains.
Methods for Containment	Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
Methods for cleaning up	Clean and neutralize spill area, tools and equipment by washing with water and soap. Absorb rinsate and add to the collected waste. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13.

7. HANDLING AND STORAGE

Handling	Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.
Storage	Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of reach of children and animals. Store in original container.

Incompatible products None known

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Toluene (108-88-3)	TWA: 20 ppm	TWA: 200 ppm Ceiling: 300 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m ³ STEL: 150 ppm STEL: 560 mg/m ³	Mexico: TWA 50 ppm Mexico: TWA 188 mg/m ³
Chemical name	British Columbia	Quebec	Ontario TWAEV	Alberta
Propylene glycol (57-55-6)	-	-	TWA: 10 mg/m ³ aerosol only TWA: 50 ppm aerosol and vapor TWA: 155 mg/m ³ aerosol and vapor	-
Toluene (108-88-3)	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m ³ Skin	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m ³ Skin

Appropriate engineering controls

Engineering measures Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Individual protection measures, such as personal protective equipment

Eye/Face Protection For dust, splash, mist or spray exposure, wear chemical protective goggles.

Skin and Body Protection Wear long-sleeved shirt, long pants, socks, and shoes.

Hand Protection Use protective gloves made of chemical materials such as nitrile or neoprene. Wash the outside of gloves with soap and water before reuse. Check regularly for leaks.

Respiratory Protection For dust, splash, mist or spray exposures, wear a filtering mask.

Hygiene measures Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

General information If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance Off-white Liquid
Physical State Liquid
Color Off-white
Odor Low Alcohol

Odor threshold	No information available
pH	5.3-6.0 @ 20°C
Melting point/freezing point	123 °C
Boiling Point/Range	No information available
Flash point	> 94 °C / > 201 °F Tag Closed Cup
Evaporation Rate	No information available
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	1 x 10 ⁻⁹ mm Hg at 25°C
Vapor density	No information available
Relative density	10.07 lb/gal
Specific gravity	1.206 1.206 @ 20 °C (water = 1)
Water solubility	Dispersible in water
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, kinematic	No information available
Viscosity, dynamic	No information available
Explosive properties	No information available
Oxidizing properties	No data available
Molecular weight	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity	None under normal use conditions.
Chemical Stability	Stable.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Excessive heat
Incompatible materials	None known.
Hazardous Decomposition Products	Carbon oxides (COx), Nitrogen oxides (NOx), Sulfur oxides, Hydrogen chloride, Hydrogen fluoride.

11. TOXICOLOGICAL INFORMATION

Product Information

LD50 Oral	2084 mg/kg (rat)
LD50 Dermal	> 2000 mg/kg (rabbit)
LC50 Inhalation	> 2.72 mg/L 4 hr (rat) - Maximum attainable concentration (zero mortality)
Serious eye damage/eye irritation	Non-irritating.
Skin corrosion/irritation	Minimally irritating.
Sensitization	Did not cause sensitization on laboratory animals.

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Propylene glycol (57-55-6)	20000 mg/kg (Rat)	20800 mg/kg (Rabbit)	
Oxirane, methyl-, polymer with oxirane, monobutyl ester (9038-95-3)	2500 g/kg (Rat)		0.147 mg/L (Rat) 4 h
Toluene (108-88-3)	= 2600 mg/kg (Rat)	= 12000 mg/kg (Rabbit)	= 12.5 mg/L (Rat) 4 h

Information on toxicological effects

Symptoms	Signs of toxicity in laboratory animals given sulfentrazone included clonic convulsions,
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ataxia, hypersensitivity to touch, chromorhinorrhea, abdominogenital staining, decreased locomotion, lacrimation, nasal discharge, and squinting eyes.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic toxicity	Sulfentrazone: Prolonged exposure cause decreased hemoglobin content and hematocrit, and increased spleen weight and splenic extramedullary hematopoiesis at high doses in animal studies
Mutagenicity	Sulfentrazone: Not genotoxic in animal studies
Carcinogenicity	Sulfentrazone: No evidence of carcinogenicity from animal studies
Neurological effects	Sulfentrazone: Clinical signs of neurotoxicity in laboratory animals was observed at high dose levels.
Reproductive toxicity	Sulfentrazone: No toxicity to reproduction in animal studies.
Developmental toxicity	Sulfentrazone: Fetal weight decreased; delayed skeletal ossification observed at maternally non-toxic doses are reversible effects and a dose-response is established; malformations observed in fetuses at maternally toxic doses and consistent with the mode of action for protoporphyrongen oxidase inhibitors. Developmental toxicity testing and results were generated for sulfentrazone with toluene present as an impurity.
STOT - single exposure	Not classified.
STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Target organ effects	Sulfentrazone: Hematopoietic system.
Neurological effects	Sulfentrazone: Clinical signs of neurotoxicity in laboratory animals was observed at high dose levels.
Aspiration hazard	No information available.

Chemical name	ACGIH	IARC	NTP	OSHA
Toluene 108-88-3		Group 3		

Legend:
 IARC (International Agency for Research on Cancer)
 Group 3 - Not classifiable as to its carcinogenicity to humans

12. ECOLOGICAL INFORMATION

Ecotoxicity

Sulfentrazone (122836-35-5)				
Active Ingredient(s)	Duration	Species	Value	Units
Sulfentrazone	72 h EC50	Algae	32.8	mg/L
	48 h EC50	Crustacea	60.4	mg/L
	96 h LC50	Fish	94	mg/L
	21 d NOEC	Fish	5.9	mg/L
	21 d NOEC	Crustacea	0.51	mg/L

Persistence and degradability	Sulfentrazone: Persistent, Does not readily hydrolyze, Not readily biodegradable.
Bioaccumulation	Sulfentrazone: The substance does not have a potential for bioconcentration.
Mobility	Sulfentrazone: Mobile, Has potential to reach ground water.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance. Proper personal protective equipment, as described in Sections 7 and 8, must be worn while handling materials for waste disposal.

Contaminated Packaging Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions. Do not reuse or refill this container.

14. TRANSPORT INFORMATION

DOT This material is not a hazardous material as defined by U.S. Department of Transportation at 49 CFR Parts 100 through 185.

TDG Classification below is only applicable when shipped by vessel and is not applicable when shipped by road or rail only.

UN/ID no UN3082
Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s.
Hazard class 9
Packing Group III
Marine Pollutant Sulfentrazone.
Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone), 9, III, Marine pollutant

ICAO/IATA

UN/ID no UN3082
Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s.
Hazard class 9
Packing Group III
Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone), 9, III, Marine pollutant

IMDG/IMO

UN/ID no UN3082
Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s.
Hazard class 9
Packing Group III
EmS No. F-A, S-F
Marine Pollutant Sulfentrazone
Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone), 9, III, Marine pollutant

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
 Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical name	CAS-No	Weight %	SARA 313 - Threshold Values %
Toluene - 108-88-3	108-88-3	1-5	1.0

SARA 311/312 Hazard Categories

Acute health hazard Yes
Chronic health hazard Yes

AUTHORITY® 480 HERBICIDE

SDS # : 1466-8-A
Revision date: 2019-01-25
Version 2.02

Fire hazard No
Sudden release of pressure hazard No
Reactive Hazard No

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium Hydroxide 1310-73-2	1000 lb			X
Toluene 108-88-3	1000 lb	X	X	X

CERCLA

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Sodium Hydroxide 1310-73-2	1000 lb 454 kg	
Toluene 108-88-3	1000 lb 454 kg	

FIFRA Information

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION

*Causes moderate eye irritation. Harmful if inhaled, swallowed, or absorbed through skin.
 This pesticide is toxic to marine/estuarine invertebrates*

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical name	California Prop. 65
Toluene - 108-88-3	Developmental

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Propylene glycol 57-55-6	X		X
Toluene 108-88-3	X	X	X

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)
Propylene glycol 57-55-6	X	X	X	X	X	X	X	X
Oxirane, methyl-,	X	X		X	X	X	X	X

polymer with oxirane, monobutyl ester 9038-95-3								
Toluene 108-88-3	X	X	X	X	X	X	X	X

Mexico - Grade Slight risk, Grade 1

Chemical name	Carcinogen Status	Mexico
Toluene		Mexico: TWA 50 ppm Mexico: TWA 188 mg/m ³

Chemical name	Mexico - Pollutant Release and Transfer Register - Reporting Emissions for Fabrication, Process or Use - Threshold Quantities	Pollutant Release and Transfer Register - Reporting Emissions - Threshold Quantities
Toluene	1000 5000 kg/yr	1000 kg/yr

WHMIS Statement

This product has been classified in accordance with the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

WHMIS Hazard Class D2A - Very toxic materials



16. OTHER INFORMATION

NFPA	Health Hazards 1	Flammability 1	Instability 0	Special Hazards -
HMIS	Health Hazards 1*	Flammability 1	Physical hazard 0	Personal Protection X

**Indicates a chronic health hazard.*

NFPA/HMIS Ratings Legend Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0

Revision date: 2019-01-25
Reason for revision: SDS sections updated

Disclaimer

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Prepared By:

FMC Corporation

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End of Safety Data Sheet

Extra Strength Avadex[®] BW Herbicide

Emulsifiable Concentrate for Fall or Spring treatment to control wild oats in Spring and Durum Wheat, Barley, Rapeseed (including Canola), Flax (not including low linolenic acid varieties), Mustard, Sugar Beets and Dry Peas.

AGRICULTURAL

GUARANTEE: Triallate..... 480 grams per litre.

WARNING



POISON

READ THE LABEL AND BOOKLET BEFORE USING PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

COMPLETE DIRECTIONS FOR USE

Use only according to label instructions. Read NOTICE before buying or using. If notice terms are not acceptable, return at once unopened.

PRECAUTIONS

COMBUSTIBLE. MAY CAUSE SKIN AND EYE IRRITATION, MAY BE HARMFUL IF SWALLOWED.

Do not use, pour, spill or store near heat or flame. Do not take internally. Do not get in eyes or on skin or on clothing.

To avoid contact with skin or eyes, wear rubber gloves and goggles when handling or spraying.

If this pest control product is to be used on a commodity that may be exported to the U.S., and you require information on acceptable residue levels in the U.S., contact 1-866-375-4648 or www.cropro.org/.

This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

FIRST AID

IN CASE OF CONTACT WITH SKIN, **IMMEDIATELY** wash skin with soap and plenty of water.

IN CASE OF CONTACT WITH EYES, **IMMEDIATELY** flush with plenty of water for at least 15 minutes and get medical attention or contact a poison control centre. Launder clothes before reuse. **If swallowed**, DO NOT induce vomiting, call a physician or contact a poison control centre **IMMEDIATELY**.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: This product contains petroleum distillate. Treat symptomatically.

IN CASE OF: FIRE, use water spray, foam, dry chemical or CO₂. **SPILL**, flush area with water spray.

STORAGE

STORE ABOVE 0°C TO KEEP FROM FREEZING.

Freezing will result in crystals which settle to the bottom of the can. If allowed to freeze, place in a warm room (22°C) and roll and shake the can frequently for several days to redissolve. Keep Avadex BW herbicide container closed to prevent spills, evaporation and contamination. Avoid contamination of seed, feed and foodstuffs.

NET CONTENTS:

REGISTRATION NO.16759
PEST CONTROL PRODUCTS ACT



Gowan Company, LLC
370 S. Main Street
P.O. Box 5569
Yuma, AZ 85366-5569

DISPOSAL

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the Provincial Regulatory Agency in case of a spill, and for the clean-up of spills.

NOTICE TO BUYER -- Seller's guarantee shall be limited to the terms set out on the label and, subject thereto, the buyer assumes the risk to person or property arising from the use or handling of this product and accepts the product on that condition.

NOTICE TO USER -- This control product is to be used only in accordance with the directions on this label. It is an offense under the *Pest Control Products Act* to use a control product under unsafe conditions.

GENERAL INFORMATION

DO NOT APPLY BY AIR.

This product is recommended for wild oat control in spring and durum wheat, barley, rapeseed (including canola), flax (not including low linolenic acid varieties), mustard, sugar beets and dry peas only. Other crops should not be treated with this product because injury may occur.

This product can be either fall or spring applied according to the recommendations on this label. Seeding may be done either before or after spraying and incorporation in the spring depending upon the crop that is to be sown. Pre-plant incorporated treatments generally provide superior wild oat control as compared to post-plant incorporated treatments.

This herbicide, or any labelled tank mixture of this herbicide, should be sprayed on the soil and incorporated before weeds germinate. If weeds have emerged prior to application, they must be controlled by tillage.

Application equipment must be properly calibrated - application of an excessive rate of Avadex BW herbicide may injure the crop, whereas application of too low a rate may result in poor wild oat control. Before applying this product, be sure the soil is in good working condition. Clay soils may require additional tillage to obtain good tilth. Application to a field which is wet, lumpy, rough or ridged will result in reduced wild oat control and promote crop thinning. See the "**Field Preparation**" section for additional information.

The incorporation of this product in to the soil must be completed as soon as possible on the day of application. The incorporation should not be deeper than 5 cm as deeper incorporation tends to dilute the product, thus decreasing wild oat control and increasing the risk of crop injury. See the "**How to Incorporate**" section for additional information.

When using Avadex BW herbicide, an untreated strip should be left for proof of results. Weed control may be evaluated by removing a surface 2.5 to 5 cm of soil at the time of germination to inspect the number of wild oats that were killed. This product is primarily absorbed by wild oat shoots from the treated layer of the soil. Wild oats are usually controlled before they emerge through the soil. Occasionally, and particularly under dry conditions and/or cool soil temperatures, some wild oats may emerge and reach the 3 to 4 leaf stage before dying.

Rainfall of at least 1.5 cm within 2 weeks after application in the spring is required to ensure maximum performance of the spring treatment.

Under conditions of prolonged cool soil temperatures at the time of germination, or extreme drought in spring, this product may not maintain the usual high standard of wild oat control.

Underseeding legumes. This product can be used in labelled crops which are to be underseeded to forage legumes such as alfalfa, clovers and trefoil provided that the legumes are not harvested for green chop, silage or hay in the year of seeding.

NOTE

Thinning in wheat following treatment has been known to occur under conditions of heavy rainfall and/or cold weather after application and before crop emergence. Thinning is usually avoided by applications after seeding in the spring and minimized WHEN THE SEED IS PLACED 1.5 TO 2.5 CM BELOW THE AVADEX BW HERBICIDE TREATED SOIL LAYER. Thinning is usually more than offset by tillering and increased yields.

Some wheat thinning may be noted on eroded knolls.

Domestic oats should not be seeded where Extra Strength Avadex BW herbicide was used the previous year. There is a possibility that this product may carry over sufficiently to injure this crop.

CAUTION: Do not graze the treated crops or cut for hay; there are not sufficient data available to support such use.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, Extra Strength Avadex BW Herbicide is a Group 8 herbicide. Any weed population may contain or develop

plants naturally resistant to Extra Strength Avadex BW and other Group 8 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Extra Strength Avadex BW or other Group 8 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Gowan Company at 1-800-883-1844 or at www.gowanco.com.

HOW TO MIX AND APPLY

Herbicides may not always mix evenly throughout a sprayable fluid fertilizer or the components may separate too quickly to make their combined use of practical value. This may be due to certain characteristics of the different fluid fertilizers. Always predetermine the compatibility of this product with a sprayable fluid fertilizer carrier by mixing small proportional quantities in advance. If large flakes, sludge, gel or other precipitates occur, do not use the carrier with this product in the same spray tank.

Apply Extra Strength Avadex BW herbicide, or the labelled tank mixture in a minimum of 90 L of water or sprayable fluid fertilizer carrier (such as 28-0-0) per hectare as a broadcast treatment.

Spraying during winds above 16 km/h will result in a loss of this product or the labelled tank mixture and may result in less than optimum wild oat control.

Mix this product or the labelled tank mixture with the appropriate carrier as follows:

1. Fill the tank approximately three-quarters full with carrier.
2. Carefully add the proper amount of this product or the labelled tank mixture while mixing.
3. Complete filling the sprayer tank with carrier. Remove the hose from the tank immediately to avoid siphoning back into the carrier source. Maintain good agitation at all times until the contents of the tank are sprayed.

NOTE: If spray mixture is allowed to settle at anytime, thorough agitation is required to resuspend the mixture before spraying is resumed.

4. The sprayer by-pass valve should be in operation before and during application.

Before spraying, check all hose connections to see that they are properly secured. Adjust the height of the spray boom in the field to ensure an even distribution of the product on the soil. Avoid overlapping of the spray. Overlapping will double the recommended rate and crop injury may result. Pressure should not be above 200 kPa and just high enough to provide a uniform spray pattern. Boomless sprayers should not be used as the distribution of Extra Strength Avadex BW herbicide will be uneven. Flush the sprayer with clean water after use.

Promptly change clothing which becomes wetted by accidental spillage or drift from spray. Wash clothing before reuse.

FIELD PREPARATION

Before applying this product be sure the soil is in good working condition. All deep tillage by cultivation or double disc implements must be completed prior to application of this product. Application of this product to soil which has 30% or greater trash cover will result in less than optimum wild oat control. If excessive trash is present additional tillage will be necessary to reduce the trash cover to an acceptable level before application.

If the soil is excessively wet or lumpy, making proper incorporation difficult, cultivation with suitable tillage equipment may be required before application and incorporation to improve the soil condition. If ridging is a problem, suitable tillage is recommended prior to application to eliminate the ridging and ensure uniform distribution of the herbicide.

HOW TO INCORPORATE

This product or labelled tank mixtures must be incorporated into the soil, using suitable tillage equipment, in order to provide wild oat control. Two incorporation operations at right angles to one another are necessary for thorough mixing of this product in the soil. The first incorporation should be completed as soon as possible on the day of spraying, whereas the second incorporation may or may not be done immediately thereafter, depending upon the timing of the application. See the "**Fall Incorporation**" and "**Spring Incorporation**" sections of this label for additional information.

Do not incorporate this product more than 5 cm. This can be accomplished by setting the tillage equipment to work the soil no deeper than 7.5 cm to 10 cm. Shallow incorporation is necessary to prevent dilution of the product, thus decreasing wild oat control and increasing the risk of crop injury.

Harrowing does not provide effective incorporation if compact soil prevents penetration of harrow teeth or if trash accumulates in the harrow sections or if harrows bounce.

FALL INCORPORATION

This product must be incorporated as described in the "**How to Incorporate**" section of this label.

For fall applications only one incorporation is required in the fall. The second incorporation may be done either in the fall (prior to soil freeze-up) or in the spring. See the "**Spring Incorporation**" section for additional information.

SPRING INCORPORATION

Before Seeding

- This product must be incorporated as described in the "**How to Incorporate**" section of this label.
- This product may be incorporated prior to the seeding of any labelled crop. See the "**Directions for Use**" section for exceptions.
- The second incorporation may then be conducted any time until crop emergence. If the second incorporation is conducted after seeding, a harrow or other suitable tillage equipment adjusted to a depth so as not to disturb the seed should be used.
- If ridging is a problem after seeding, one harrowing is recommended to eliminate the ridging and ensure uniform distribution of the herbicide.

After Seeding

- This product must be incorporated as described in the "**How to Incorporate**" section of this label.
- This product may be incorporated after the seeding of labelled crops. See the "**Directions for Use**" section for exceptions.
- Seed to a depth of 5 to 7.5 cm, then immediately shallowly incorporate to a depth of 4 to 5 cm using suitable equipment, such as harrows.
- The second incorporation must be conducted at a right angle to the first incorporation, any time prior to crop emergence.
- Adjust incorporation equipment to a depth so as not to disturb the seed.

DIRECTIONS FOR USE

The recommended higher rates of this product should be used in soils with greater than 4% organic matter content.

Fall Treatment

Fall applications of this product must be made after October 1 and until soil freeze-up. Applications made before October 1 may result in reduced effectiveness of the herbicide. See the "**Field Preparation**" and "**How to Incorporate**" sections of this label for additional information.

Extra Strength AVADEX BW RATES (L/ha) – FALL TREATMENT				
Crop	Organic Matter Less than 2%	Organic Matter 2-4%	Organic Matter Greater than 4%	Seeding Depth
Spring & Durum Wheat	2.5	2.9	3.5	5-7.5 cm*
Barley	2.5	2.9	3.5	5-7.5 cm*
Rapeseed, Flax**, Mustard, Sugar Beets	2.9	3.5	4.6	As desired

* This seeding depth will ensure placement below the treated layer. DO NOT SEED DEEPER THAN 7.5 CM.

** Does not include low linolenic acid varieties

Spring Treatment

This product can be applied either before or after seeding labelled crops, except as noted in the following table. For applications before seeding, seed to the proper depth immediately or up to 3 weeks after application. Superior wild oat control is generally achieved from applications made before seeding.

For applications made after seeding, application and both incorporations must be completed prior to emergence of the crop. For after seeding applications, optimum wild oat control is achieved when the application and incorporation is made as soon as possible after seeding.

See the "**Field Preparation**" and "**How to Incorporate**" sections of this label for additional information.

Extra Strength AVADEX BW RATES (L/ha) – SPRING TREATMENT				
Crop	Application Timing	Organic Matter 4% or less	Organic Matter Greater than 4%	Seeding Depth
Spring & Durum Wheat	Before Seeding**	2.5	2.9	5-7.5 cm*
	After Seeding	2.9	3.5	5-7.5 cm*
Barley	Before & After Seeding	2.9	3.5	5-7.5 cm*
Rapeseed, Flax**, Mustard, Sugar Beets	Before Seeding	3.5	4.6	As desired
Peas (dry)	Before Seeding	3.5	3.5	As desired

*This seeding depth will ensure placement below the treated layer. DO NOT SEED DEEPER THAN 7.5 CM.

**DO NOT APPLY this product before seeding wheat in soils with 4% or less organic matter (brown, dark brown or grey-wooded soil zones) where discs are to be used for the seeding operation. If an air seeder is to be used, it must be equipped with a depth control device to ensure accurate seed placement, otherwise crop injury may occur.

*** Does not include low linolenic acid varieties

**Extra Strength AVADEx BW PLUS TREFLAN® or RIVAL®
(Tank Mixture)**

Extra Strength Avadex BW Herbicide can be tank mixed with Treflan or Rival herbicide for the control of both wild oats and wild millet (green and yellow foxtail).

This tank mixture can be applied after seeding wheat and barley only.

Refer to the "Field Preparation," "How to Mix and Apply" and "How to Incorporate" sections of this label for specific information.

Rates To Apply

Apply Extra Strength Avadex BW herbicide at the rate recommended in the "Directions for Use" section, tank mixed with Treflan herbicide at the rate recommended in the following table:

TREFLAN RATES* (L/ha)		
Soil Texture Group**	Soil Organic Matter Content	
	4% or less	Greater than 4%
Coarse and Medium	1.1	1.5
Fine	1.5	1.5

RIVAL RATES* (L/ha)		
Soil Texture Group**	Soil Organic Matter Content	
	4% or less	Greater than 4%
Coarse and Medium	1.21	1.65
Fine	1.65	1.65

**Refer to the following table to determine the corresponding soil texture group for the soil to be treated:

Soil Texture Group	Soil Texture
Coarse	Sand, loamy sandy, sandy loam
Medium	Loam, silt loam, silt, sandy clay loam
Fine	Silty clay loam, clay loam, sandy clay, silty clay, clay

ATTENTION

- Refer to the label for Treflan or Rival liquid herbicide for additional precautions.
- Seeding depth should be 5-7.5 cm. DO NOT seed deeper than 7.5 cm.

© Treflan is a registered trademark of Dow-Elanco Canada Ltd.

© Rival is a registered trademark of Hoechst-NORAM AgrEvo Inc.

APPLICATION WITH DRY BULK FERTILIZER

General

NOTE: Do not mix ammonium nitrate, potassium nitrate or sodium nitrate with Extra Strength Avadex BW since these nitrate fertilizers may cause explosions and fires.

Dry bulk fertilizer may be impregnated or coated with Extra Strength Avadex BW herbicide. Applications of dry bulk fertilizer impregnated with this product can be made in the fall or spring. Wheat should be seeded in fall applications only. Application should be made as soon as possible after blending. Only pre-plant incorporated applications are recommended in the spring prior to seeding of barley, flax (not including low linolenic acid varieties), rapeseed, mustards, sugar beets or dry peas.

All labelled crops may be seeded in fall applications. For rates and times of applications for various crops refer to "Directions for Use" section of this label.

Mixing and Blending

Compliance with the Fertilizer Act is the responsibility of the individual/company selling the herbicide/fertilizer mixture.

A minimum of 150 kg/ha of dry bulk fertilizer impregnated with Extra Strength Avadex BW herbicide at the recommended rates must be applied. Mix and blend the dry bulk fertilizer and the product in rotary mixers commonly used in dry fertilizer blending. The nozzle or nozzles used to spray Extra Strength Avadex BW herbicide on the urea should be placed to provide uniform spray coverage. Sufficient mixing and blending time should be allowed to ensure uniform coverage of dry bulk fertilizer with this product.

See the rate table that follows to determine the amount of Extra Strength Avadex BW herbicide to be impregnated on a tonne of dry bulk fertilizer based on the amount of fertilizer to be applied per hectare.

NOTE: When using Extra Strength Avadex BW the total combined liquid volume must not exceed 23.7 litres per tonne of dry fertilizer. If applying Extra Strength Avadex BW at a rate of 4.6 litres per hectare DO NOT impregnate on less than 200 kg of dry fertilizer.

APPLICATION

Spread the fertilizer chemical mixture using a properly calibrated applicator. Be certain the material is applied uniformly to the soil surface. When using spin spreaders a 100 percent overlap is recommended to ensure even distribution. Spin applicators should be calibrated to put out one-half the desired rate per hectare and application overlapped by doubling back to cover one half of the previous swath. Dribble spreaders must be calibrated with the fertilizer chemical mixture since the flow pattern for the Extra Strength Avadex BW herbicide coated dry bulk fertilizer will generally be slower than straight dry bulk fertilizer. Non-uniform spreading of the fertilizer/herbicide mixture may result in unsatisfactory weed control or crop injury.

INCORPORATION

Follow normal Extra Strength Avadex BW herbicide incorporation procedures.

NOTE: Only pre-plant incorporated applications are recommended in the spring. FOR BEST RESULTS ON SPRING PRE-PLANT APPLICATIONS, DELAY SECOND INCORPORATION FOR AT LEAST 24 HOURS FOLLOWING THE FIRST. Under conditions of prolonged cool soil temperatures or extreme drought, a longer delay may be utilized to maximize control. Shallow and uniform incorporation of the herbicide treatment is essential for both fall and spring applications.

A partial list of fertilizers which may be impregnated with Avadex BW:

Diammonium phosphate	18-46-0
Treble super-phosphate	0-46-0
Urea	45-0-0
Ammonium sulfate	21-0-0
Potassium chloride	0-0-60
Potassium sulfate	0-0-52

The following table provides a reference to determine the amount of liquid herbicide to be mixed per tonne of dry bulk fertilizer.

		Extra Strength Avadex BW Fertilizer Rate Fertilizer (L/ha)		
		2.9 (L/ha)	3.5 (L/ha)	4.6* (L/ha)
Dry Bulk Kg/ha	ha/Tonne	L / Tonne		
150	6.7	19.6	23.7	--
160	6.3	18.3	22.3	--
170	5.9	17.2	20.8	--
180	5.6	16.3	19.8	--
190	5.3	15.5	18.7	--
200	5.0	14.6	17.7	22.9
225	4.4	12.8	15.6	20.2
250	4.0	11.7	14.2	18.3

IN CASE OF A MEDICAL EMERGENCY involving this product, call Prosar at 1-888-478-0798:

© Avadex is a registered trademark of Gowan Company, LLC.

PMRA Approved: 28 Nov 2005



MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Gowan Company
P.O. Box 5569
Yuma, Arizona 85366-5569
(800) 883-1844

Emergency telephone number: (928) 783-3803

For 24-hour emergency assistance (spill, leak, fire, or exposure),
call CHEMTREC®:

Inside the U.S.: (800) 424-9300

Outside the U.S.: (703) 527-3887

For *medical* emergency: (888) 478-0798

Product:	Extra Strength Avadex® BW	PCP Registration No.:	16759
Signal Word:	Warning	CAS No.:	2303-17-5
Active Ingredient:	Triallate (480 g/l)		
Chemical Name:	S-(2,3,3-trichloro-2-propenyl) bis(1-methylethyl)carbamothioate		
Chemical Class:	Thiocarbamate		

2. HAZARDS IDENTIFICATION

Physical Properties

Appearance: Amber to light brown colored liquid

Primary Routes of Exposure

Skin contact and inhalation

Medical Conditions Likely to be Aggravated by Exposure

May cause respiratory tract and eye irritation

Hazardous Decomposition Products

None known

Unusual Fire, Explosion, and Reactivity Hazards

Combustible

3. COMPOSITION/INFORMATION ON INGREDIENTS

	<u>Component</u>	<u>CAS No.</u>	<u>% by weight</u>
Active Ingredient:	Triallate*+	2303-17-5	46.3%
Other Ingredients:	emulsifier*#		<5%
	C9 Aromatics (composition variable)*	64742-95-6 or 64741-98-6	40-46%

	<u>CAS No.</u>	<u>% by weight</u>
Components of C9 Aromatics in this product		
1,2,4-trimethylbenzene*+ or trimethyl benzenes (mixed)	95-63-6 or 25551-13-7	<18%
Xylenes (mixed)*+	1330-20-7	<8%
Cumene*+	98-82-8	<3%

4. FIRST AID MEASURES

If inhaled	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
If in eyes	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none">• Call poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow.• Do not induce vomiting unless told to do so by the poison control center or doctor.• Do not give anything by mouth to an unconscious person.
<ul style="list-style-type: none">• Have the product container or label with you when calling a poison control center or physician, or going for treatment.	

FOR MEDICAL EMERGENCIES INVOLVING THIS PRODUCT, CALL TOLL FREE: (888) 478-0798

5. FIRE FIGHTING MEASURES

Flashpoint (test method): 115°F (46°C) Tag Closed Cup

Appropriate Extinguishing Media

In case of fire, use water spray (fog), foam, dry chemical, or CO₂

Fire Fighting Guidance

Firefighters and other exposed to products of combustion should wear self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

Unusual Fire, Explosion, and Reactivity Hazards

None known

6. ACCIDENTAL RELEASE MEASURES

In Case of Spills or Leaks

Observe all protection and safety precautions when cleaning up spills - See Exposure Controls/Personal Protection, Section 8.

Liquid spills on floor or other impervious surfaces should be contained or diked and should be absorbed with attapulgite, bentonite or other absorbent clays. Collect contaminated absorbent, place in metal drum and dispose of in accordance with instructions provided under DISPOSAL CONSIDERATIONS. Thoroughly scrub floor with a strong industrial type detergent solution and rinse with water.

Liquid spills that soak into the ground should be dug up, placed in metal drums and disposed of in accordance with instructions provided under DISPOSAL CONSIDERATIONS.

Leaking containers should be separated from those not leaking and either the container or its contents transferred to a drum or other non-leaking container and disposed of in accordance with instructions provided under DISPOSAL CONSIDERATIONS. Collect and disposed of any recovered spilled liquid.

7. HANDLING AND STORAGE

Handling

Avoid contact with eyes, skin or clothing. Avoid breathing vapors or spray mist. User should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Do not use, pour, spill or store near heat or flame. Use only with adequate ventilation.

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washings.

Storage:

STORE ABOVE 32° F (0° C) TO KEEP FROM FREEZING.

7. HANDLING AND STORAGE (cont.)

Freezing will result in crystals, which settle to the bottom. If allowed to freeze, place in a warm room (72° F, 22° C) and gently shake the jug frequently for several days to dissolve crystals before using. For bulk containers, see the bulk container label for alternate storage information. Keep containers closed to prevent spills, evaporation and contamination.

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: Wear chemical safety goggles to prevent eye contact during operations such as mixing or transfer or other activities when there is potential for eye contact.

SKIN PROTECTION: Although this material does not present a significant skin concern, skin contamination should be minimized as good industrial practice. Applicators and other handlers must wear long-sleeved shirt, long pants, shoes plus socks, and chemical resistant gloves such as barrier laminate and viton. Follow manufacturer's instructions for cleaning/maintaining personal protective equipment. If no such instructions for washables, use detergent and hot water. Keep and wash personal protective equipment separately from other laundry.

RESPIRATORY PROTECTION: Avoid breathing mist or vapor. This product is not likely to pose an airborne exposure concern when handled and used in accordance with label instructions.

VENTILATION: Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits (see below). The use of local mechanical exhaust ventilation at sources of air contamination such as open process equipment is preferred.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	amber to brown colored liquid
Boiling Point:	320° F (160°C)
Solubility:	forms an emulsion
Specific Gravity:	1.03 at 25/15.6° C
Vapor Pressure:	18 mmHg at 100° F (37.8° C)

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Stability:	Stable for at least four years under normal conditions of warehouse storage.
Hazardous Polymerization:	Will not occur
Decomposition Products:	None known
Hazardous Mixtures:	None known
Conditions To Avoid:	None known

11. TOXICOLOGICAL INFORMATION

Oral LD50 (Rat) -	2193 mg/kg, Slightly Toxic
Dermal LD50 (Rabbit) -	>5000 mg/kg, Practically Nontoxic
Inhalation LC50 (Rat) -	>5.2 mg/L Practically Nontoxic
Eye Irritation (Rabbit) -	Moderately Irritating
Skin Irritation (Rabbit, 24-hr) -	Slightly Irritating

12. ECOLOGICAL INFORMATION

The results of single exposure (acute) environmental toxicity studies indicate that Extra Strength Avadex BW herbicide is moderately toxic to two species of fish and practically nontoxic to quail.

13. DISPOSAL CONSIDERATION

PESTICIDE DISPOSAL: Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable federal, provincial or municipal regulations. Keep out of drains, sewers, ditches and waterways.

CONTAINER DISPOSAL: Emptied container retains vapour and product residue. Observe all labelled safeguards until container is cleaned, reconditioned or destroyed. Completely empty container into transfer or application equipment. Do not reuse container. Triple or jet rinse the container then offer for recycling or reconditioning. If offering for reconditioning, contact the manufacturer. If offering for recycling, remove all caps, labels and booklets and take to a pesticide container depot. Recycling sites are identified on the CropLife Canada (Clean Farms) website at: www.croplife.ca

14. TRANSPORT INFORMATION

TDG Classification

Not regulated

International Maritime Organization

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, PG III, MARINE POLLUTANT

International Civil Aviation Organization

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, PG III

15. REGULATORY INFORMATION

WHMIS Classification

This product is registered under the Pest Control Products Act and has been prepared in accordance with the WHMIS requirements.

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 1
Flammability: 2
Reactivity: 0

0	Least
1	Slight
2	Moderate
3	High
4	Severe

Prepared By:

Gowan Company
(800) 883-1844

Notice: The information and recommendations contained herein are provided in good faith and are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information herein.

Avadex® is a registered trademark of Gowan Company, LLC.

2016-1936
2017-12-21
CANADIAN LABEL

IMPORTANT NOTICE

This product is registered in both the U.S. and Canada. It has BOTH U.S. and Canada Labeling
You must follow ONLY the U.S. label WHEN USING THIS product in the U.S.
You must follow ONLY the Canadian label WHEN USING THIS product in Canada.

GROUP	8	HERBICIDE
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VADEX MicroActiv Herbicide

Granular Herbicide for Fall or Spring Treatment in Conventional and Direct Seeding Systems to Control Wild Oats in labeled crops.
See the appropriate U.S. or Canadian Use Directions.

AGRICULTURAL

ACTIVE INGREDIENT	% By Wt.
Triallate, S-(2,3,3-trichloroallyl)-diisopropylthiocarbamate.....	10.0%
OTHER INGREDIENTS:	90.0%
	TOTAL 100.0%

ATTENTION, contains the allergen soy.

CAUTION

Refer to the label booklet for additional precautionary information, directions for use, and the warranty statement. Read "NOTICE OF CONDITIONS OF SALE AND WARRANTY LIABILITY LIMITATIONS" before buying or using. If terms are not acceptable, return at once unopened.

FIRST AID Herbicide	
If swallowed	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
If in eyes	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER When seeking medical attention, take the container label if at all possible. If not, take information which identifies the product, that is, the product names and registration numbers. You may also contact 1-888-478-0798 for emergency medical treatment information.	

TOXICOLOGICAL INFORMATION: Treat symptomatically.

<p align="center">United States AGRICULTURAL USE REQUIREMENTS</p> <p>Use this product only in accordance with its labeling and with the Worker Protection Standard, 40CFR Part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.</p>
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ENVIRONMENTAL HAZARDS

2016-1936

2017-12-21

CANADIAN LABEL

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate. Refer to country specific label booklet for additional environmental hazard information.

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
KEEP OUT OF REACH OF CHILDREN

Causes skin and eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Do not take internally. Refer to country specific label booklet for additional precautions.

STORAGE AND DISPOSAL IN THE U.S.

Do not contaminate water, foodstuffs, feed or seed by storage and disposal.

PESTICIDE STORAGE: Keep bag closed to prevent spills and contamination.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures.

CONTAINER DISPOSAL: Nonrefillable container. Do not reuse or refill this container. Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Completely empty container into transfer or application equipment. Offer for recycling, if available, or dispose of empty sack in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

(For multiwall bags) Non refillable container. Do no reuse or refill this container. Completely empty container into application equipment. Offer for recycling if available, or dispose of empty container in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

STORAGE AND DISPOSAL IN CANADA

STORAGE: Keep Avadex MicroActiv Herbicide bag closed to prevent spills and contamination. Avoid contamination of seed, feed and foodstuffs.

DISPOSAL: Do not reuse this container for any purpose. Thoroughly empty the contents of the container into the application device. Make the empty container unsuitable for further use. Dispose of the container in accordance with provincial requirements. For information on the disposal of unused, unwanted product, contact the manufacturer or the Provincial Regulatory Agency. Contact the manufacturer and the Provincial Regulatory Agency in case of a spill, and for clean-up spills.

In the United States: It is a violation of United States law to use this product without having obtained the United States label at the time of purchase and following the U.S. label at the time of application.

In Canada: NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offense under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

NET CONTENTS 995 lbs/451.3 kg 50lbs/22.7 kg



EPA Est. No.070989-IA-001
REGISTRATION No. 25112
PEST CONTROL PRODUCTS ACT
EPA Reg. No. 10163-287
AVMA-02-R0107

Produced for:
Gowan Company
P.O. Box 5569
Yuma, AZ 85366-5569 U.S.A.
Product Information, contact: 1-800-883-1844

2016-1936
2017-12-21
CANADIAN LABEL

GROUP	8	HERBICIDE
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CANADIAN LABEL - It is a violation of Canadian law to use this product in Canada in a manner inconsistent with its Canadian labelling.

AVADEX MICROACTIV HERBICIDE

In Canada

Granular Herbicide for Fall or Spring Treatment in Conventional and Direct Seeding Systems to Control Wild Oats in Spring and Durum Wheat, Barley, Rapeseed (including Canola), Flax (not including low linolenic acid varieties), Yellow and Brown Mustard, Oriental Mustard (condiment and oilseed types), Sugar Beets and Canary Seed.

ACTIVE INGREDIENT	% By Wt.
Triallate, S-(2,3,3-trichloroallyl)-diisopropylthiocarbamate.....	10.0%
OTHER INGREDIENTS:	90.0%
	TOTAL 100.0%

ATTENTION, contains the allergen soy

CAUTION

AGRICULTURAL Complete Directions for Use

REGISTRATION NO. 25112 PEST CONTROL PRODUCTS ACT

Use only according to label instructions.

IMPORTANT NOTE: Before use, recalibrate application equipment.

READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT. Use only according to label instructions. Read "NOTICE OF CONDITIONS OF SALE AND WARRANTY LIABILITY LIMITATIONS" before buying or using. If terms are not acceptable, return at once unopened.

NET CONTENTS: 451.3 kg

Gowan[®]
CANADA
GOWAN Company
P.O. Box 5569
Yuma, Arizona 85366-5569

Product Information: 1-800-883-1844

2016-1936

2017-12-21

CANADIAN LABEL

PRECAUTIONS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

KEEP OUT OF REACH OF CHILDREN

Causes skin and eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Do not take internally.

Wear chemical-resistant coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, socks, and chemical-resistant footwear during mixing, loading, application, clean-up and repair. Chemical-resistant coveralls and gloves are not required during aerial application within a closed cockpit. In addition, during mixing, loading, clean-up and repair, wear either a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH-approved canister approved for pesticides.

FIRST AID Herbicide	
If swallowed	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
If in eyes	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
When seeking medical attention, take the container label if at all possible. If not, take information which identifies the product, that is, the product names and registration numbers. You may also contact 1-888-478-0798 for emergency medical treatment information.	

TOXICOLOGICAL INFORMATION

Treat symptomatically.

RESTRICTED-ENTRY INTERVAL

Do not enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

ENVIRONMENTAL HAZARDS

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate.

Runoff

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted or fine textured such as clay).

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Leaching

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

Volatilization

2016-1936

2017-12-21

CANADIAN LABEL

The active ingredient contained in this product is known to volatilize. To reduce the atmospheric loading of triallate, effort should be made to reduce the volatilization such as the following:

- Incorporation into the soil concurrently with application.
- Application should occur when soil temperatures are 4°C or less.

STORAGE

Keep Avadex MicroActiv Herbicide bag closed to prevent spills and contamination. Avoid contamination of seed, feed and foodstuffs.

DISPOSAL

Do not reuse this container for any purpose. Thoroughly empty the contents of the container into the application device. Make the empty container unsuitable for further use. Dispose of the container in accordance with provincial requirements.

For information on the disposal of unused, unwanted product, contact the manufacturer or the Provincial Regulatory Agency. Contact the manufacturer and the Provincial Regulatory Agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on this label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

GENERAL INFORMATION

Wear chemical-resistant coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, socks and chemical-resistant footwear during mixing, loading, application, clean-up and repair. Chemical-resistant coveralls and gloves are not required during aerial application within a closed cockpit. In addition, during mixing, loading, clean-up and repair, wear either a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH-approved canister approved for pesticides.

This granular herbicide is recommended for wild oat control in conventional or direct seeding systems in spring and durum wheat, barley, rapeseed (including canola), flax (not including low linolenic acid varieties), yellow and brown mustard, Oriental mustard (condiment and oilseed types), sugar beets and canary seed, and field peas. Other crops should not be treated with this product as injury may occur.

This product can be either fall or spring applied according to the recommendations on this label. Seeding may be done either before or after application and incorporation in the spring depending upon the crop that is to be sown.

Pre-plant incorporated treatments generally provide superior wild oat control as compared to post-plant incorporated treatments.

This granular herbicide should be applied on the soil and incorporated before weeds germinate. If weeds have emerged prior to application, they must be controlled by tillage.

Application equipment must be properly calibrated. Application of an excessive rate of Avadex MicroActiv Herbicide may injure the crop, whereas application of too low a rate may result in poor wild oat control. Before applying this product, be sure the soil is in good working condition. Clay soils may require additional tillage to obtain good tilth. Application to a field which is wet, lumpy, rough or ridged will result in reduced wild oat control and promote crop thinning. See the "**Field Preparation**" section for additional information.

The initial incorporation of this product into the soil must be completed within 48 hours after application and before germination of wild oats, except for treatments in direct seed systems. (Refer to the "**Minimum Tillage/Direct Seeding Systems**" section of this label). The incorporation should not be deeper than 5 cm, as deeper incorporation tends to dilute the product, thus decreasing wild oat control and increasing the risk of crop injury. See the "**How to Incorporate**" section for additional information.

When using Avadex MicroActiv Herbicide, an untreated strip should be left for proof of results. Weed control may be evaluated by removing a surface 2.5 to 5 centimetres of soil at the time of germination to inspect the number of wild oats that were killed before emergence. This product is primarily absorbed by wild oat shoots from the treated layer of the soil. Wild oats are usually controlled before they emerge through the soil. Occasionally, and particularly under dry conditions and/or cool soil temperatures, some wild oats may emerge and reach the 3 to 4 leaf stage before dying.

Rainfall of at least 1.5 centimetres within 2 weeks after application in the spring is required to ensure maximum performance of the spring treatment.

Under conditions of prolonged cool soil temperatures at the time of germination, or extreme drought in spring, this product may not

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maintain the usual high standard of wild oat control.

FOR BEST RESULTS ON SPRING APPLICATIONS IN CONVENTIONAL SEEDING SYSTEMS, DELAY THE SECOND INCORPORATION FOR AT LEAST 48 HOURS FOLLOWING THE FIRST. Under conditions of prolonged cool soil temperatures or extreme drought, a longer delay may be utilized to maximize control.

Underseeding legumes: This product can be used in labelled crops which are to be underseeded to forage legumes such as alfalfa, clovers and trefoil provided that the legumes are not harvested for green chop, silage or hay in the year of seeding.

DO NOT apply more than one application per year.

DO NOT apply this product directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries and marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

NOTE

Thinning in wheat following treatment has been known to occur under conditions of heavy rainfall and/or cold weather after application and before crop emergence. Thinning is usually avoided by applications after seeding in the spring and minimized WHEN THE SEED IS PLACED 1.5 TO 2.5 CENTIMETRES BELOW THE AVADEx MICROACTIV HERBICIDE TREATED SOIL LAYER. Thinning is usually more than offset by tillering and increased yields.

Some wheat thinning may be noted on eroded knolls.

Domestic oats should not be seeded where Avadex MicroActiv Herbicide was used the previous year. There is a possibility that this product may carry over sufficiently to injure this crop.

CAUTION: Do not graze the treated crops or cut for hay; there are not sufficient data to support such use.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Avadex MicroActiv Herbicide is a Group 8 herbicide. Any weed population may contain or develop plants naturally resistant to Avadex MicroActiv Herbicide and other Group 8 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Avadex MicroActiv Herbicide or other Group 8 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Gowan Company at 1-800-883-1844 or at www.gowanco.com.

HOW TO APPLY & CALIBRATE EQUIPMENT

Avadex MicroActiv Herbicide must be applied through a ground broadcast applicator such as a grass seed attachment or a specially designed ground broadcast applicator. This product can also be applied by an airplane capable of applying small quantities of granules evenly.

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GROUND EQUIPMENT

It is important that the applicator be calibrated properly to deliver the desired amount of this product to avoid applying too little or too much material. To give even distribution, scatter plates (similar to those used for applying granules in a band) must be attached to give overall coverage. To calibrate, attach cloth or strong plastic bag over each spreader plate or delivery tube. Operate over normal terrain to be treated at 6 to 8 km/h. Collect the granules from all outlets after covering the desired distance.

For example: If a 4.25 metres applicator is being used, stake off a distance of 200 metres in the field to be treated. After attaching a bag to each outlet, collect the granules while driving the distance. Check to see that each outlet disperses the same amount of granules. Combine all samples and weigh. For the above set of conditions, the quantities of granules that should be collected for the following recommended rates for broadcast treatment are:

	Recommended Rate		
	11 kg/ha	14 kg/ha	17 kg/ha
Proper amount to be collected =	0.9 kg	1.2 kg	1.5 kg

If more or less than the desired quantity is collected, adjust opening accordingly and again collect the granules while driving the staked off distance. Continue this procedure until the proper amount is delivered.

To calibrate applicators using air pressure to disperse the granules, follow directions as outlined by manufacturer.

AERIAL APPLICATION

Directions for Use

Do not use human flaggers.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate(s) recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of a spotter plane is recommended.

AVADEX MICROACTIV HERBICIDE RATES (kg/ha) Aerial Application

CROP	--- ORGANIC MATTER---	
	2 - 4%	GREATER THAN 4%
Spring & Durum Wheat	14	17
Barley, Canary Seed	14	17
Canola, Flax**, Yellow and Brown Mustard, Oriental Mustard (condiment and oilseed types), Sugar Beets	17	22
Field peas	17	22

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of granules onto any body of water or other non-target areas.

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Do not apply during periods of dead calm or when wind velocity and direction pose a risk of drift. Do not apply when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating or drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-883-1844 or obtain technical advice from the distributor or your provincial agricultural representative.

For aerial applications, attachments designed for applying low volumes of granules must be used. Appropriate modifications should be made to equipment to ensure precise application. It is also necessary to properly calibrate equipment to ensure uniformity of application and proper rate.

FIELD PREPARATION

Before applying this product be sure the soil is in good working condition. All deep tillage by cultivation or double disc implements must be completed prior to application of this product. If excessive trash is present, additional tillage or other appropriate trash management practice will be necessary to reduce the trash cover to an acceptable level before application as too much trash can make uniform incorporation difficult.

If the soil is excessively wet or lumpy, making proper incorporation difficult, cultivation with suitable tillage equipment may be required before application and incorporation to improve the soil condition. If ridging is a problem, suitable tillage is recommended prior to application to eliminate the ridging and ensure uniform distribution of the herbicide. Fall tillage is not necessary with the direct seed - high disturbance systems fall treatment.

DIRECTIONS FOR USE

DO NOT apply more than one application per year.

DO NOT apply this product directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries and marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

MINIMUM TILLAGE/DIRECT SEEDING SYSTEMS

Prairie Provinces and Interior of BC ONLY Incorporation

High Disturbance Systems (Minimum Tillage)

A high disturbance incorporation can be conducted prior to seeding or as part of the seeding operation. A high disturbance system is one that disturbs the soil enough so that emerged weeds are controlled by the tillage. (High disturbance may be caused by the seed drill - cultivator or disc type, or with harrows following the seed drill, or both). Levelling the soil at or after seeding with harrows will ensure uniform product coverage and best performance.

Application of granules 10-14 days prior to incorporation is required for best results.

Low Disturbance Systems

A low disturbance operation (eg. zero tillage seeding operation) can also be used. A low disturbance system (eg. zero tillage air seeder) will not disturb the soil enough to control emerged weeds; therefore, a preseeding burnoff treatment using a herbicide such as Roundup® may be necessary. Application of granules at least two weeks prior to incorporation is required for best results.

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For optimum results with Avadex MicroActiv Herbicide treatments in direct seed systems, seed when wild oat growth is noticeable in the field. This will ensure that the soil is warm enough for activation of Avadex MicroActiv Herbicide.

Minimum Tillage/Direct Seed applications should not be made to fields covered with snow or excessive crop residue which will not allow granule contact with soil. If excessive crop residue exists at the time of application, a vigorous harrowing can be used to ensure that the herbicide granules make adequate contact with the soil.

Under excessively warm or wet conditions between application and crop emergence, control may be reduced. For best results on heavy wild oat infestations, use the incorporated treatment only.

Soil colour may not be a precise indicator of organic matter content. Ensure that the application rate chosen from the table below is appropriate for your soil type.

Do not apply by surface application more than once per year.

FALL TREATMENT

Where fields are prone to water and/or wind erosion and fall tillage is therefore undesirable, fall minimum tillage applications should be made when the average soil temperature at the 5 centimetres depth is 4 °C or less and within 3 weeks of soil freeze up. This situation generally occurs by October 1 across the Prairies.

Apply at rates shown in the following table. Applications should be made to standing stubble, chemical fallow, or summerfallow fields in a state of low soil erodibility. Avoid smooth, hard-packed soil conditions which may allow granules to drift. Avoid applications to fields in a state of high soil erodibility.

No fall incorporation is required. Incorporation may be conducted in the spring prior to seeding or at seeding.

Applications should not be made to fields covered with snow or excessive crop residue which will not allow granule contact with soil. If excessive crop residue exists at the time of application, a vigorous harrowing can be used to ensure that the herbicide granules make adequate contact with the soil.

Under excessively warm or wet conditions between application and crop emergence, control may be reduced. For best results on heavy wild oat infestations, use the incorporated treatment only.

Soil colour may not be a precise indicator of organic matter content. Ensure that the application rate chosen from the table below is appropriate for your soil type.

Do not use this treatment on soils with less than 2% organic matter content.

**AVADEX MICROACTIV HERBICIDE RATES (kg/ha) - FALL
(Minimum Tillage/Direct Seed Systems)**

CROP	-- ORGANIC MATTER--		SEEDING DEPTH
	2 - 4%	GREATER THAN 4%	
Spring & Durum Wheat	14	17	5 - 7.5 cm*
Barley, Canary Seed	14	17	5 - 7.5 cm*
Canola, Flax**, Yellow and Brown Mustard, Oriental Mustard (condiment and oilseed types), Sugar Beets	17	22	As desired
Field peas	17	22	As desired

* This seeding depth will ensure placement below the treated layer.

** Do not use on low linolenic acid varieties of flax

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SPRING TREATMENT

Apply Avadex MicroActiv Herbicide in the Spring when average soil temperature at the 5 centimetre depth is 4°C or less. Use the rate appropriate for soil type as shown in the table below. Application should be made to soils which have adequate trash cover to prevent soil erosion between application and seeding. **Ensure that the time between application and incorporation is a minimum of 10 to 14 days.** Do not apply more than 4 weeks before intended seeding.

Refer to Minimum Tillage – Fall treatment section for relevant information on field and weather conditions prior to application of Avadex MicroActiv Herbicide.

Incorporation may occur prior to or at seeding, as described below.

AVADEX MICROACTIV HERBICIDE RATES (kg/ha) - SPRING
(Minimum Tillage/Direct Seed Systems)

CROP	--- ORGANIC MATTER---		SEEDING DEPTH
	4% OR LESS	GREATER THAN 4%	
Spring & Durum Wheat	14	17	5 - 7.5 cm*
Barley, Canary Seed	14	17	5 - 7.5 cm*
Canola, Flax**, Yellow and Brown Mustard, Oriental Mustard (condiment and oilseed types), Sugar Beets	17	22	As desired
Field peas	17	22	As desired

* This seeding depth will ensure placement below the treated layer.

** Do not use on low linolenic acid varieties of flax

AVADEX MICROACTIV HERBICIDE APPLICATIONS IN CONVENTIONAL TILLAGE SYSTEMS

HOW TO INCORPORATE

This product must be incorporated into the soil, using suitable tillage equipment, in order to provide wild oat control. Two incorporation operations at right angles to one another are necessary for thorough mixing of this product in the soil, except for treatments in minimum tillage/direct seeding systems. The first incorporation should be completed within 48 hours of application, whereas the second incorporation may or may not be done immediately thereafter, depending upon the timing of the application. See the "**Fall Incorporation**" and "**Spring Incorporation**" sections of this label for additional information.

Do not incorporate this product more than 5 centimetres. This can be accomplished by setting the tillage equipment to work the soil no deeper than 7.5 centimetres to 10 centimetres. Shallow incorporation is necessary to prevent dilution of the product, thus decreasing wild oat control and increasing the risk of crop injury.

Harrowing does not provide effective incorporation if compact soil prevents penetration of harrow teeth or if trash accumulates in the harrow sections or if harrows bounce.

FALL INCORPORATION

This product must be incorporated as described in the "**How to Incorporate**" section of this label.

For fall applications (except for treatments in minimum INCORPORATION IN CONJUNCTION WITH FALL FERTILIZER tillage/ direct seeding systems), only one incorporation is required in the fall. The second incorporation may be done either in the fall (prior to soil freeze-up) or in the spring. See the "**Spring Incorporation**" section for additional information.

BANDING

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This product may be broadcast prior to or in conjunction with fall fertilizer banding. It is necessary to ensure that the shank spacing, speed of travel and soil conditions (including moisture content and crop residue levels) are suitable to ensure that sufficient soil is being thrown to cover the granules.

If the following seeding operation is to be conducted using either a hoe drill or a double disc press drill, then the second incorporation (fall or prior to seeding in the spring) must be conducted using a field cultivator or similar equipment to ensure uniform distribution of the herbicide.

Contact your distributor or local crop advisor for specific recommendations for applying this product in conjunction with fall fertilizer banding.

**SPRING INCORPORATION
Before Seeding**

This product must be incorporated as described in the "**How to Incorporate**" section of this label.
This product may be incorporated prior to the seeding of any labelled crop. See the "**General Information**" section for exceptions.

The second incorporation may then be conducted any time until crop emergence. If the second incorporation is conducted after seeding, a harrow or other suitable tillage equipment adjusted to a depth so as not to disturb the seed should be used.

If ridging is a problem after seeding, one harrowing is recommended to eliminate the ridging and ensure uniform distribution of the herbicide.

After Seeding

This product must be incorporated as described in the "**How to Incorporate**" section of this label.

This product may be incorporated after the seeding of any labelled crop. See the "**General Information**" section for exceptions.

Seed to a depth of 5 to 7.5 centimetres, then immediately shallowly incorporate to a depth of 4 to 5 centimetres using suitable equipment, such as harrows.

The second incorporation must be conducted at a right angle to the first incorporation, any time prior to crop emergence.

Adjust incorporation equipment to a depth so as not to disturb the seed.

NOTE

FOR BEST RESULTS ON SPRING APPLICATION, DELAY THE SECOND INCORPORATION FOR AT LEAST 48 HOURS FOLLOWING THE FIRST. Under conditions of prolonged cool soil temperatures or extreme drought, a longer delay may be utilized to maximize control.

DIRECTIONS FOR USING AVADEX MICROACTIV HERBICIDE IN CONVENTIONAL TILLAGE SYSTEMS

The recommended higher rates of this product should be used in soils with greater than 4 percent organic matter content.

Fall Treatment (Incorporated)

Fall applications of this product must be made after September 15 and until soil freeze-up. Applications made before September 15 may result in reduced effectiveness of the herbicide. See the "**Field Preparation**" and "**How to Incorporate**" sections of this label for additional information.

**AVADEX MICROACTIV HERBICIDE RATES (kg/ha)
FALL TREATMENT (Incorporated)**

CROP	ORGANIC MATTER			SEEDING
	2% OR LESS	2 – 4%	GREATER THAN 4%	DEPTH
Spring & Durum Wheat	11	14	17	5 – 7.5 cm*
Barley, Canary Seed	11	14	17	5 – 7.5 cm*
Canola, Flax**, Yellow and Brown Mustard, Oriental Mustard (condiment and oilseed types), Sugar Beets	14	17	22	As desired
Field peas	14	17	22	As desired

*This seeding depth will ensure placement below the treated layer. DO NOT SEED DEEPER THAN 7.5 CENTIMETRES.

** Do not use on low linolenic acid varieties of flax

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Spring Treatment (Incorporated)

This product can be applied either before or after seeding labelled crops, except as noted in the following table. For applications before seeding, seed to the proper depth immediately or up to 3 weeks after application. Superior wild oat control is generally achieved from applications made before seeding.

For applications made after seeding, application and both incorporations must be completed prior to emergence of the crop. For after seeding applications, optimum wild oat control is achieved when the application and initial incorporation are made as soon as possible after seeding.

See the "Field Preparation" and "How to Incorporate" sections of this label for additional information.

**AVADEX MICROACTIV HERBICIDE RATES (kg/ha)
SPRING TREATMENT (Incorporated)**

CROP	APPLICATION TIMING	ORGANIC MATTER		SEEDING DEPTH
		LESS THAN 4%	GREATER THAN 4%	
Spring & Durum Wheat**	Before Seeding	11	14	5 – 7.5 cm*
	After Seeding	14	17	5 – 7.5 cm*
Barley, Canary Seed	Before & After Seeding	14	17	5 – 7.5 cm*
Canola, Flax*** Yellow and Brown Mustard, Oriental Mustard (condiment and oilseed types), Sugar Beets	Before Seeding	17	22	As desired
Field peas	Before Seeding	17	22	As desired

*This seeding depth will ensure placement below the treated layer.

DO NOT SEED DEEPER THAN 7.5 CENTIMETRES.

**DO NOT APPLY this product before seeding wheat in soils with 4 percent or less organic matter (brown, dark brown or grey-wooded soil zones) where discers are to be used for the seeding operation. If an air seeder is to be used, it must be equipped with a depth control device to ensure accurate seed placement, otherwise crop injury may occur.

*** Do not use on low linolenic acid varieties of flax

Buffer Zones

The buffer zones specified below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangeland and shrub lands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine or marine habitats.

Method of Application	Buffer Zone (metres) Required for the Protection of:			
	Aquatic Habitat at Water Depths:			Terrestrial Habitat
	< 1 metre	1 – 3 metres	>3 metres	
Ground sprayer*	5	2	1	5
Ground sprayer with shrouds	2	1	0	2
Ground sprayer with cones	4	1	0	4

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy or ground, the labelled buffer zone can be reduced by 70%.

When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy or ground, the labelled buffer zone can be reduced by 30%.

In case of a medical emergency involving this product, call 1-888-478-0798.

Avadex® is a registered trademark of Gowan Company LLC.

1 Identification

1.1 Product identifier

· **Trade name:** Avadex® MicroActiv Herbicide

· **CAS Number:**

Triallate (10.0 %): 2303-17-5

Registration number: PCP Registration No.: 25112

Group 8 Herbicide

· **Application of the substance / the mixture** Agricultural Herbicide

1.3 Details of the supplier of the safety data sheet

· **Manufacturer/Supplier:**

Gowan Company

P.O. Box 5569

Yuma, Arizona 85366-5569

(800) 883-1844

· **Information department:** *sds@gowanco.com*

1.4 Emergency telephone number:

Chemtrec® Emergency Telephone 24 - Hours: (Spills, leak or fire) Inside U.S. & Canada: (800) 424-9300

Outside the U.S. & Canada: +011 (703) 527-3887

For medical emergency (Prosar®): (888) 478-0798

2 Hazard identification

2.1 Classification of the substance or mixture

· **Classification according to Regulation (EC) No 1272/2008**



GHS09 Environment

Aquatic Acute 1

H400 Very toxic to aquatic life.

Aquatic Chronic 1

H410 Very toxic to aquatic life with long lasting effects.



GHS07

Skin Irritation - Category 2 H315 Causes skin irritation.

Skin Sensitizer - Category 1 H317 May cause an allergic skin reaction.

Eye Irritation - Category 2B H320 Causes eye irritation.

2.2 Label elements

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labeled according to the CLP regulation.

· **Hazard pictograms**



GHS07 GHS09

· **Signal word** Warning

· **Hazard-determining components of labeling:**

Triallate (ISO) / diisopropylthiocarbamate de S-2,3,3-tri-chloroallyle

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Safety Data Sheet

according to HPR, Schedule 1

Printing date 07/01/2019

Reviewed on 07/01/2019

Trade name: Avadex® MicroActiv Herbicide

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· Hazard statements

- H315+H320 Causes skin and eye irritation.
 H317 May cause an allergic skin reaction.
 H410 Very toxic to aquatic life with long lasting effects.

· Precautionary statements

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P305+P351+P338 **IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
 P321 Specific treatment (see on this label).
 P337+P313 If eye irritation persists: Get medical advice/attention.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Hazard description:

Causes skin and eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

· Classification system:

- NFPA ratings (scale 0 - 4)



Health = 1
 Fire = 1
 Reactivity = 1

HAZARD INDEX:

- 4 Severe Hazard
 3 Serious Hazard
 2 Moderate Hazard
 1 Slight Hazard
 0 Minimal Hazard

· 2.3 Other hazards

- PBT: Not applicable.
 · vPvB: Not applicable.

3 Composition/Information on ingredients

· 3.2 Chemical characterization: Mixtures

- **Description:** Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

CAS: 2303-17-5	Triallate (ISO) / diisopropylthiocarbamate de S-2,3,3-tri-chloroallyle	10.0% w/w

4 First aid measures

· 4.1 Description of first aid measures**· General information:**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

You may also contact 1-888-478-0798 for emergency medical treatment information.

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Reviewed on 07/01/2019

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- **After skin contact:**
 - Take off contaminated clothing.
 - Rinse skin immediately with plenty of water for 15-20 minutes.
 - Call a poison control center or doctor for treatment advice.
- **After eye contact:**
 - Hold eye open and rinse slowly and gently with water for 15-20 minutes.
 - Remove contact lenses, if present, after first 5 minutes, then continue rinsing eyes.
 - Call a poison control center or doctor for treatment advice.
- **After swallowing:**
 - Call a poison control center or doctor immediately for treatment advice.
 - Have person sip a glass of water if able to swallow.
 - Do not induce vomiting unless told to do so by a poison control center or doctor.
 - Do not give anything by mouth to an unconscious person.
- **4.2 Most important symptoms and effects, both acute and delayed** Unknown
- **4.3 Indication of any immediate medical attention and special treatment needed** None

5 Firefighting measures

- **5.1 Extinguishing media**
 - **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture**
 - Carbon monoxide (CO)
 - Nitrogen oxides (NO_x)
 - Phosgene (COCL₂)
 - Carbonyl sulphide (COS)
 - Hydrogen chloride (HCl)
- **5.3 Advice for firefighters**
 - **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to item 13.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **7.1 Precautions for safe handling**
Causes skin and eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.
 - **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.
- **7.2 Conditions for safe storage, including any incompatibilities**
 - **Storage:**
 - **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.

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according to HPR, Schedule 1

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Trade name: Avadex® MicroActiv Herbicide

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- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

8 Exposure controls/ Personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **8.1 Control parameters**
 - **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
 - **Additional information:** The lists that were valid during the creation were used as basis.
- **8.2 Exposure controls**
 - **Personal protective equipment:**
 - **Breathing equipment:**
during mixing, loading, clean-up and repair, wear either a respirator with a NIOSH/MSHA/BHSE-approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH/MSHA/BHSE-approved canister approved for pesticides.
 - **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- **Material of gloves** Chemical-resistant gloves.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Body protection:**
Wear chemical-resistant coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, socks, and chemical-resistant footwear during mixing, loading, application, clean-up and repair.

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

- **Appearance:**
 - **Form:** Granulate
 - **Color:** Beige-grey
- **Odor:** Sulfur-like
- **Odor threshold:** Not determined.

· **pH-value:** N/A

Change in condition

- **Melting point/Melting range:** Undetermined.
- **Boiling point/Boiling range:** Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

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CA/EN

Safety Data Sheet

according to HPR, Schedule 1

Printing date 07/01/2019

Reviewed on 07/01/2019

Trade name: Avadex® MicroActiv Herbicide

(Contd. of page 4)

· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not self-igniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
· Lower:	Not determined.
· Upper:	Not determined.
· Vapor pressure:	Not applicable.
· Density:	Not determined.
· Relative density	Not determined.
· Vapor density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with	
· Water:	Dispersible.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
· Dynamic:	Not applicable.
· Kinematic:	Not applicable.
· 9.2 Other information	No further relevant information available.

10 Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability** Stable under normal conditions
 - **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**
 - Carbon monoxide (CO)
 - Nitrogen oxides (NO_x)
 - Phosgene (COCL₂)
 - Carbon sulphide (COS)
 - Hydrogen chloride (HCl)

11 Toxicological information

- **11.1 Information on toxicological effects**
 - **Acute toxicity:** Based on available data, the classification criteria are not met.

· LD/LC50 values that are relevant for classification:		
Oral	LD50	12000 mg/kg (rat)
Dermal	LD50	>20000 mg/kg (rabbit)

- **Primary irritant effect:**
 - **on the skin:**
 - Slightly irritating
 - Causes skin and eye irritation.
 - **on the eye:** Slight irritation

(Contd. on page 6)

CA/EN

Safety Data Sheet

according to HPR, Schedule 1

Printing date 07/01/2019

Reviewed on 07/01/2019

Trade name: Avadex® MicroActiv Herbicide

(Contd. of page 5)

- **Sensitization:**
May cause an allergic skin reaction.
- **Additional toxicological information:**
 - **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients are listed.

· **NTP (National Toxicology Program)**

None of the ingredients are listed.

12 Ecological information

- **12.1 Toxicity**
Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate.
 - **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
 - **Ecotoxicological effects:**
 - **Remark:** Toxic for fish
 - **Additional ecological information:**
 - **General notes:**
"DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes."
- **12.5 Results of PBT and vPvB assessment**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

13 Disposal considerations

- **13.1 Waste treatment methods**
 - **Recommendation:**
For information on the disposal of unused, unwanted product, contact the manufacturer or the Provincial Regulatory Agency. Contact the manufacturer and the Provincial Regulatory Agency in case of a spill, and for clean-up of spills.
- **Uncleaned packagings:**
 - **Recommendation:**
Do not reuse this container for any purpose. Thoroughly empty the contents of the container into the application device. Make the empty container unsuitable for further use. Dispose of the container in accordance with provincial requirements.

14 Transport information

- **14.1 UN-Number**
- **DOT/TDG** Not regulated
- **ADR** Marine Pollutants Exemption (TDG 1.45.1)

(Contd. on page 7)

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Safety Data Sheet

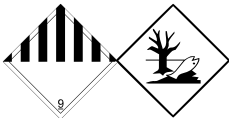
according to HPR, Schedule 1

Printing date 07/01/2019

Reviewed on 07/01/2019

Trade name: Avadex® MicroActiv Herbicide

(Contd. of page 6)

· IMDG, IATA	UN3077
· 14.2 UN proper shipping name · DOT/TDG · ADR · IMDG · IATA	Void Marine Pollutants Exemption (TDG 1.45.1) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (tri-allate (ISO)), MARINE POLLUTANT ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (tri-allate (ISO))
· 14.3 Transport hazard class(es) · 14.3 DOT/TDG (Transport dangerous goods): · Class	Void
· ADR, IMDG, IATA 	
· Class · Label	9 Miscellaneous dangerous substances and articles 9
· 14.4 Packing group · DOT/TDG · ADR, IMDG, IATA	Void III
· 14.5 Environmental hazards: · Marine pollutant: · Special marking (ADR): · Special marking (IATA):	Product contains environmentally hazardous substances: Triallate (ISO) / diisopropylthiocarbamate de S-2,3,3- tri-chloroallyle Yes Symbol (fish and tree) Symbol (fish and tree) Symbol (fish and tree)
· 14.6 Special precautions for user · Danger code (Kemler): · EMS Number:	Warning: Miscellaneous dangerous substances and articles 90 F-A,S-F
· 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable
· Transport/Additional information:	
· ADR · Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5 kg Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g

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Safety Data Sheet

according to HPR, Schedule 1

Printing date 07/01/2019

Reviewed on 07/01/2019

Trade name: Avadex® MicroActiv Herbicide

(Contd. of page 7)

- | | |
|--|--|
| <ul style="list-style-type: none"> · UN "Model Regulation": | <ul style="list-style-type: none"> Canada TDG Marine Pollutants Exemption (TDG 1.45.1)
 US DOT No Regulated |
|--|--|

15 Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **SARA Title III**

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

CAS: 2303-17-5 | Triallate (ISO) / diisopropylthiocarbamate de S-2,3,3-tri-chloroallyle

· **TSCA (Toxic Substances Control Act):**

None of the ingredients are listed.

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

None of the ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

None of the ingredients are listed.

· **Labelling according to Regulation (EC) No 1272/2008**

· **Hazard pictograms** Not applicable

· **Hazard statements**

Causes moderate eye irritation.

Avoid contact with skin, eyes, or clothing.

Wash thoroughly with soap and water after handling.

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

· **National regulations:**

· **Additional classification according to Decree on Hazardous Materials:**

Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label.

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

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Safety Data Sheet
according to HPR, Schedule 1

Printing date 07/01/2019

Reviewed on 07/01/2019

Trade name: Avadex® MicroActiv Herbicide

(Contd. of page 8)

H373 May cause damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

- **Department issuing SDS:** Supply Chain
- **Contact:** *sds@gowanco.com*
- **Date of the latest revision of the safety data sheet** 07/01/2019 / 6
- **Abbreviations and acronyms:**
 - IMDG: International Maritime Code for Dangerous Goods*
 - DOT: US Department of Transportation*
 - IATA: International Air Transport Association*
 - GHS: Globally Harmonised System of Classification and Labelling of Chemicals*
 - EINECS: European Inventory of Existing Commercial Chemical Substances*
 - ELINCS: European List of Notified Chemical Substances*
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)*
 - NFPA: National Fire Protection Association (USA)*
 - LC50: Lethal concentration, 50 percent*
 - LD50: Lethal dose, 50 percent*
 - PBT: Persistent, Bioaccumulative and Toxic*
 - vPvB: very Persistent and very Bioaccumulative*
- **Sources** Avadex® is a registered trademark of Gowan Company LLC.
- *** Data compared to the previous version altered.**

CA/EN

GROUP	1	HERBICIDE
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AXIAL® Herbicide

EMULSIFIABLE CONCENTRATE

AGRICULTURAL

A post emergence herbicide for control of wild oats, green foxtail, yellow foxtail, barnyard grass, volunteer oats, volunteer canary seed and proso millet in Spring Wheat, Winter Wheat and Barley.

FOR SALE FOR USE ONLY IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA AND EASTERN CANADA

ACTIVE INGREDIENT:

Pinoxaden..... 50 g/L

Contains Cloquintocet-mexyl at 12.5 g/L as a safener

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

DANGER: EYE AND SKIN IRRITANT

REGISTRATION NO.: **30431**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **1 L to bulk**

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

LABEL

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

AXIAL® Herbicide contains materials that may cause severe pneumonitis if aspirated. Treat symptomatically for ingestion and/or skin and eye contact. THIS PRODUCT CONTAINS PETROLEUM DISTILLATES. VOMITING MAY CAUSE ASPIRATION PNEUMONIA.

PRECAUTIONS

- KEEP OUT OF THE REACH OF CHILDREN.
- Severely irritating to the skin. DO NOT get on skin. May irritate eyes. Avoid contact with eyes.
- Do not wear contact lenses when using.
- Avoid contact with clothing. Wear coveralls over a long sleeved shirt and long pants, chemical resistant gloves, socks and chemical resistant footwear during mixing, loading, application, clean-up and repair. In addition, wear goggles or face shield and a chemical resistant apron during mixing, loading, clean-up and repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating,

drinking or smoking.

- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse. Wash thoroughly with soap and water after handling. Handle and apply only as recommended on this label.
- Do not eat, drink or smoke while mixing, loading or during application.
- DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

STORAGE

Keep in original container, tightly closed, during storage. Store in a cool, dry, well ventilated area away from feed and foodstuffs, and out of the reach of children and animals. Keep away from fire or open flame, or other sources of heat. If frozen, allow to thaw and agitate thoroughly prior to use.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in

case of a spill, and for cleanup of spills.

CONTAINER DISPOSAL:

FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR REFILLABLE CONTAINERS:

For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

AXIAL® is a trademark of a Syngenta Group Company.

GROUP	1	HERBICIDE
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AXIAL® Herbicide

EMULSIFIABLE CONCENTRATE

AGRICULTURAL

A post emergence herbicide for control of wild oats, green foxtail, yellow foxtail, barnyard grass, volunteer oats, volunteer canary seed and proso millet in Spring Wheat, Winter Wheat and Barley.

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ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

STORAGE

Keep in original container, tightly closed, during storage. Store in a cool, dry, well ventilated area away from feed and foodstuffs, and out of the reach of children and animals. Keep away from fire or open flame, or other sources of heat. If frozen, allow to thaw and agitate thoroughly prior to use.

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FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

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***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

PRODUCT INFORMATION

AXIAL Herbicide is a systemic, post-emergence herbicide for the selective control of wild oats, green foxtail, yellow foxtail, barnyard grass, volunteer oats, volunteer canary seed and proso millet in Spring Wheat, Winter Wheat and Barley in the Prairie Provinces and the Interior of British Columbia and Eastern Canada.

AXIAL Herbicide is absorbed by the leaves and is rapidly translocated to the growing points of leaves and stems. Thorough coverage of the plants is essential for consistent control. Actively growing susceptible grasses stop growing within 48 hours of treatment. Depending on species, growing conditions and crop competition, leaves and growing points turn yellow within one to three weeks after application. Further colour changes and loss of vigour will be observed, followed by a browning and control three to five weeks after application.

Although AXIAL Herbicide does not control broadleaf weeds, AXIAL Herbicide can be tank-mixed with a range of broadleaf herbicides to provide broad spectrum weed control in Spring Wheat, Winter Wheat and Barley. See section entitled 'TANK MIXES WITH BROADLEAF WEED HERBICIDES AND FUNGICIDES'.

DIRECTIONS FOR USE

CROPS: Spring Wheat, Winter Wheat and Barley

AXIAL Herbicide can be used on all varieties of Spring Wheat, Winter Wheat and Barley.

One application per year is permitted.

Observe a minimum interval to harvest of 60 days after treatment for grain and straw and of 30 days after treatment for hay. Observe a minimum of 7 days before grazing livestock on crops treated with AXIAL Herbicide.

Do not apply on any crop other than Spring Wheat, Winter Wheat or Barley, as crop damage will result. Do not allow spray to drift to adjacent fields seeded to crops other than Spring Wheat, Winter Wheat or Barley. Do not treat Spring Wheat, Winter Wheat or Barley under-seeded to forages. Do not apply AXIAL Herbicide on highly sensitive crops such as: Tame Oats, Proso Millet, Red Millet, Crown Millet or Canary Seed.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the ASAE medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotor span.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rain, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted or fine textured such as clay).

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrub-lands).

Method of application	Crop	Buffer zones (metres) required for the protection of:
		Terrestrial habitat
Field sprayer	Spring wheat, winter wheat and barley	1
Aerial (Fixed or Rotary Wing)		25

* For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the

labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

ROTATIONAL CROP INFORMATION

For fields treated with AXIAL Herbicide, no crop may be seeded until the following year. There are no crop rotation limitations the year following application of AXIAL Herbicide.

WEEDS CONTROLLED: Wild Oats, Green Foxtail, Yellow Foxtail, Barnyard Grass, Volunteer Oats, Volunteer Canary Seed and Proso Millet

Perennial grasses such as quack grass will not be controlled.

TIMING OF APPLICATION:

CROP / WEEDS*	GROWTH STAGE** (ZADOKS or BBCH)
SPRING WHEAT WINTER WHEAT BARLEY	1 leaf to flag leaf stage (11, 20 to 37)
WILD OATS GREEN and YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER OATS VOLUNTEER CANARY SEED PROSO MILLET	1 – 6 leaf, prior to 4 th tiller (11, 20 to 16 and 23)

* When tank-mixing with a broadleaf herbicide, always refer to the label of the broadleaf partner prior to use.

** Do not apply past flag leaf stage.

For optimum results, apply AXIAL Herbicide to actively growing weeds. An early application will maximize crop yields by reducing weed competition. Weeds emerging after application of AXIAL Herbicide will not be controlled.

Weed control following application of AXIAL Herbicide alone, or in combination with broadleaf weed herbicides, can be reduced or delayed under stress conditions such as drought, heat, insufficient fertility, flooding or prolonged cool temperatures. Grass escapes or re-tillering may occur if application is made during prolonged stress conditions. Optimum weed control will be obtained if application of AXIAL Herbicide is delayed until the stress conditions have ended and weeds are once again actively growing.

AXIAL Herbicide alone can be used one hour before rainfall.

Do not apply to crop that is stressed by conditions such as frost, low fertility, drought, flooding, disease or insect damage as crop injury may result.

RATE OF USE:

Apply the recommended rate of AXIAL Herbicide in 50 L to 100 L of water per hectare for ground application and in a minimum of 30 L of water per hectare for aerial application. AXIAL has a built-in adjuvant; thus no additional adjuvant is required. When tank-mixing AXIAL Herbicide with a tank-mix partner, ensure you read the tank-mix partner label for minimum water recommendations.

CROP	WEEDS CONTROLLED	USE RATES	
SPRING WHEAT WINTER WHEAT BARLEY	WILD OATS GREEN and YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER OATS VOLUNTEER CANARY SEED PROSO MILLET	AXIAL Herbicide	1200 mL/ha (0.5 L/acre)

NOTES: Do not tank mix with any other adjuvants, chemical additives, or fertilizers unless recommended on this label.

TANK MIXES WITH BROADLEAF WEED HERBICIDES AND FUNGICIDES:

For broad spectrum weed control of annual grasses and broadleaf weeds, AXIAL Herbicide can be tank-mixed with broadleaf herbicides as described in the following table. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, re-cropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions. AXIAL Herbicide can also be tank-mixed with TILT® 250E Fungicide for suppression or control of diseases in spring wheat and barley listed on the TILT 250E Fungicide label. Consult the label of the tank-mix partner for a list of broadleaf weeds, or diseases controlled, rates, timing, re-cropping restrictions, grazing interval restrictions, recommendations for specific weeds/insects/diseases, directions for use and precautions and follow the more restrictive label. For the appropriate rate of AXIAL Herbicide, refer to the 'RATE OF USE' section of the label.

Tank-Mix Partner ¹	Product Rates
Refine® SG Herbicide	30 g/ha
Refine SG Herbicide + MCPA Ester ^{2,3}	30 g/ha + 560 - 700 mL/ha ⁴
Refine SG Toss-N-Go® Herbicide	30 g/ha
Refine SG Toss-N-Go Herbicide + MCPA Ester ^{2,3}	30 g/ha + 560 - 700 mL/ha ⁴
Buctril® M ³	1.0 L/ha
Curtail® M ³	1.5 to 2.0 L/ha
Prestige™ Herbicide Tank Mix ³	600 - 800 mL/ha of Prestige A + 1.5 - 2.0 L/ha of Prestige B
Spectrum™ Herbicide Tank Mix ^{2,3}	100 mL/ha of Spectrum A + 1.5 L/ha of Spectrum B
Trophy® ³	0.6 L/ha of Trophy A + 1.12 L/ha of Trophy B
Mextrol 450 ³	1.25 L/ha
MCPA Ester ³	840 mL to 1.1 L/ha ⁴
TILT 250E Fungicide	250 – 500 mL

Tank-Mix Partner ¹	Product Rates
Infinity® Herbicide ⁵	0.83 L/ha
Frontline XL Herbicide	1.25 L/ha
Stellar™ A Herbicide	1.0 L/ha
Pixxaro™ A HERBICIDE	308 mL/ha
Pixxaro A HERBICIDE + MCPA Ester ⁶	308 mL/ha + 583-700 mL/ha ⁶
¹ Always consult the label of the broadleaf herbicide prior to use.	
² Suppression only of green foxtail.	
³ A reduction in barnyard grass control may be observed when AXIAL Herbicide is tank mixed with these broadleaf herbicides.	
⁴ This rate is for MCPA Ester 500 therefore rates must be adjusted accordingly for other concentrations.	
⁵ For control of common ragweed and suppression of round-leaved mallow.	
⁶ This rate is for MCPA Ester 600 (600 g a.e./L) therefore rates must be adjusted accordingly for other concentrations.	

Temporary crop injury may occur with tank-mixes under extreme weather conditions or when the crop is suffering from stress due to inadequate or abnormally high moisture levels or extreme temperatures.

MIXING INSTRUCTIONS FOR GROUND APPLICATION:

1. Ensure that the sprayer interior is clean, then fill the spray tank with ½ the required amount of water and engage gentle agitation. Good agitation is indicated by a rippling or rolling action on the surface of the water.
2. Add any WG or DF formulation mix partners and agitate to ensure complete mixing.
3. Add any SC formulation mix partners and agitate to ensure complete mixing.
4. Add AXIAL (EC) herbicide and agitate to ensure complete mixing.
5. Add any additional EC formulation mix partners and agitate to ensure complete mixing.
6. Fill the tank to ¾ the required amount of water.
7. Add any solution (SN) formulation mix partners and agitate to ensure complete mixing.
8. Finish filling the sprayer with water, maintaining good agitation.
9. After any break in spraying operations, agitate thoroughly before spraying again.
10. Spray the herbicide suspension the same day as mixing.
11. Do not mix, load or clean spray equipment where there is a potential to contaminate wells or aquatic systems.

SPRAYING INSTRUCTIONS FOR GROUND APPLICATION:

1. Water Volume: 50 to 100 litres per hectare.
2. Spray Nozzles: 80° or 110° pre-orifice flat fan or air induction nozzles are recommended. Use 50 mesh nozzle screens. Do not use flood type nozzles, controlled droplet application equipment, spray foils or hollow cone nozzles.
3. Pressure: As recommended by the nozzle manufacturer.
4. Apply uniformly at 6 - 8 km/hr and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to avoid potential crop injury from over application.

SPRAYER CLEAN-UP FOR GROUND APPLICATION:

Clean Up Before Spraying:

- Prior to using AXIAL Herbicide, ensure that the spray tank, lines and filter are thoroughly clean.

Clean Up After Spraying:

- Thoroughly clean application equipment immediately after spraying. To avoid subsequent injury to other crops, immediately after spraying and before spraying other crops, thoroughly remove all traces of AXIAL Herbicide from mixing and spraying equipment.
- When using tank mixes, consult the tank-mix partner label for additional cleanup instructions.
- The following recommendations are provided:
 1. Drain and flush tank walls, boom and all hoses for ten minutes with a clean water/detergent mixture. Rinse with clean water. **Do not** clean the sprayer near desirable vegetation, wells or other water sources.
 2. Remove all nozzles and screens and wash separately.
 3. Dispose of all rinsings in accordance with provincial regulations.

AERIAL APPLICATION

Instruction for Aerial Application

Apply AXIAL Herbicide alone or in tank mixes (ONLY with the recommended tank mix partners that are registered for aerial use) in no less than 30 litres of water per hectare.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind

velocity and direction pose a risk of spray drift.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-87-SYNGENTA (1-877-964-3682) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Apply in at least 30 litres of water per hectare.

Avoid spraying when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. DO NOT allow nozzle spacing to exceed 65% of boom length.

DO NOT overspray non-target terrestrial or aquatic habitats. DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches, and wetlands), estuaries or marine habitats. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Resistance-Management Recommendations

For resistance management, AXIAL Herbicide is a Group 1 herbicide. Any weed population may contain or develop plants naturally resistant to AXIAL Herbicide and other Group 1 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of AXIAL Herbicide or other Group 1 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.

Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates, precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact Company representatives at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

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Buctril®, Curtail®, Frontline™, Infinity®, Pixxaro™, Prestige™, Refine®, Spectrum™, Stellar™, Toss-N-Go® and Trophy® are trademarks of their respective companies.

SECTION 1: PRODUCT INFORMATION**Product Identifier:** AXIAL[®] HERBICIDE**Formulation Number:** A13617V**Registration Number:** 30431 (Pest Control Products Act)**Product Use:** Herbicide. Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.**Syngenta Canada Inc.**
140 Research Lane, Research Park
Guelph, ON N1G 4Z3**SDS prepared by:** Department of Regulatory & Biological Assessment, Syngenta Canada Inc.**For further information, contact:** 1-87-SYNGENTA (1-877-964-3682)**In Case of Emergency, Call: 1-800-327-8633 (FAST MED)****SECTION 2: HAZARDS IDENTIFICATION**

Classification in accordance with UN GHS Version 5.

Hazard Classification(s): Acute Toxicity (Inhalation) – Category 4
Aspiration Hazard – Category 1
Eye Irritation – Category 2B
Reproductive Toxicity – Category 1B
Skin Irritation – Category 2
Specific Target Organ Toxicity (STOT) Single Exposure – Category 3
Specific Target Organ Toxicity (STOT) Repeated Exposure – Category 2**Hazard Symbol(s):****Signal Word:** DANGER**Hazard Statement(s):** H304 – May be fatal if swallowed and enters airway.
H315 – Causes skin irritation.
H320 – Causes eye irritation.
H332 – Harmful if inhaled.
H335 – May cause respiratory irritation.
H336 – May cause drowsiness or dizziness.
H360 – May damage fertility or the unborn child.
H373 – May cause damage to organs through prolonged or repeated exposure.

Precautionary Statement(s):

- Prevention:** P201 – Obtain special instructions before use.
P202 – Do not handle until all safety precautions have been read and understood.
P260 – Do not breathe dust/fume/gas/mist/vapours/spray.
P264 – Wash thoroughly after handling.
P271 – Use only outdoors or in a well-ventilated area.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
- Response:** P301+P310 – IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302+P352 – IF ON SKIN: Wash with plenty of water.
P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 – IF exposed or concerned: Get medical advice/attention.
P312 – Call a POISON CENTER/doctor if you feel unwell.
P321 – Specific treatment: See Section 4 of this SDS.
P331 – Do not induce vomiting.
P332+P313 – If skin irritation occurs: Get medical advice/attention.
P337+P313 – If eye irritation persists: Get medical advice/attention.
P362+P364 – Take off contaminated clothing and wash it before reuse.
- Storage:** P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
P405 – Store locked up.
- Disposal:** P501 – Dispose of contents/containers to an approved waste disposal plant.

Other Hazards Which do not Result in GHS Classification: To avoid risk to human health and the environment, comply with the instructions for use. Combustible liquid. Can release vapours that form explosive mixtures at temperatures at or above the flash point.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS
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Chemical Name	Common Name	CAS Number	Average % by weight
Solvent naphtha (petroleum)	Petroleum solvent	Trade Secret	Trade Secret
Tetrahydro-2-furylmethanol	Tetrahydrofurfuryl alcohol (THFA)	97-99-4	Trade Secret
8-(2,6-diethyl-4-methylphenyl)-1,2,4,5-tetrahydro-7-oxo-7H-pyrazolo[1,2-d][1,4,5]oxadiazepine-9-yl-2,2-dimethylpropanoate	Pinoxaden	243973-20-8	5.05
1-methylhexyl-2-[(5-chloro-8-quinolinyl)oxy] acetate	Cloquintocet-mexyl	99607-70-2	1.26

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Safety Data Sheet with you when calling Syngenta, a poison control centre or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [1-800-327-8633 (1-800-FASTMED)], for further information.

Eye Contact: Flush eyes with clean water, holding eyelids apart for a minimum of 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eyes. Call Syngenta, a poison control centre or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

Skin Contact: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with running water for a minimum of 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

Inhalation: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

Ingestion: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control centre. If spontaneous vomiting occurs, have the victim lean forward with head down to avoid breathing in of vomitus.

Most Important Symptoms/Effects, Acute and Delayed:

Harmful if inhaled.

May cause respiratory irritation.

May cause drowsiness or dizziness.

May be fatal if swallowed and enters airway.

Causes skin and eye irritation.

May damage fertility or the unborn child.

May cause damage to organs through prolonged or repeated exposure.

Indication of Immediate Medical Attention and Special Treatment:

There is no specific antidote.

Treat symptomatically.

Contains petroleum distillates, vomiting may cause aspiration pneumonia.

SECTION 5: FIRE FIGHTING MEASURES

Suitable (and Unsuitable) Extinguishing Media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist. Cool closed containers exposed to fire with water spray. Do not use a solid water stream as it may scatter and spread the fire.

Specific Hazards Arising from the Product: Combustible liquid (Class IIIA). Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Special Protective Equipment and Precautions for Fire-Fighters: Wear full protective clothing and self-contained breathing apparatus. Evacuate non-essential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water run-off can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Control the spill at its source. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Use adequate ventilation and equipment and wear clothing as described in Section 8 and/or the product label.

Environmental Precautions: Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.

Methods and Materials for Containment and Cleaning Up: Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or seep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into a compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: Combustible liquid. Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. Avoid exposure to hot surfaces, open flames and sparks.

KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours, dust or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Conditions for Safe Storage, Including Any Incompatibilities: Store in original container in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Refer to the product label for specific storage recommendations, including minimum storage temperature and freeze/thaw stability. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL AND/OR ON-FARM APPLICATIONS.

Control Parameters:

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Petroleum solvent	Not established	Not established	50 mg/m ³ TWA*; 300 ppm TWA (AB/QC); Use calculation required (BC/ON)	No	Not established
Tetrahydrofurfuryl alcohol (THFA)	Not established	Not established	0.5 ppm AIHA WEEL TWA****	No	Yes
Pinoxaden	Not established	Not established	0.1 mg/m ³ TWA***	No	Not established
Cloquintocet-mexyl	Not established	Not established	5 mg/m ³ TWA***	No	Not established

- * Recommended by Manufacturer
- ** Recommended by NIOSH
- *** Syngenta Occupational Exposure Limit (OEL)
- **** Recommended by AIHA (American Industrial Hygiene Association)
- † Material listed in Ingredient Disclosure List under the Hazardous Products Act

Appropriate Engineering Controls: If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV (threshold limit value). Warehouses, production areas, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

Individual Protection Measures:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

Ingestion: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

Eyes: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Skin: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use a NIOSH certified respirator with any R, P or HE filter. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air purifying respirators may not provide adequate protection.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
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Appearance: Yellow-orange to orange-brown liquid.

Formulation Type: Emulsifiable concentrate.

Physical State: Liquid.

Odour: Aromatic.

Odour Threshold: Not available.

pH: 5 – 7 (1% aqueous solution @ 25 °C).

Melting Point: Not applicable.

Freezing Point: < - 40 °C.

Initial Boiling Point and Boiling Range: Not available.

Flash Point: 78.9 °C.

Evaporation Rate: Not available.

Flammability (solid/gas): Combustible liquid (Class IIIA).

Lower Explosive Limit: Not available.

Upper Explosive Limit: Not available.

Vapour Pressure: Pinoxaden: 3.50 x 10⁻⁹ mmHg @ 20 °C.
Cloquintocet-mexyl: 4.00 x 10⁻⁸ mmHg @ 20 °C.

Vapour Density: Not available.

Relative Density: 0.99 g/cm³ @ 20 °C.

Solubility(ies): Pinoxaden: 200 mg/L @ 20 °C, pH 7 (water).
Cloquintocet-mexyl: 0.54 mg/L @ 20 °C, pH 7 (water).

Partition Coefficient (n-octanol water): Pinoxaden: 3.2
Cloquintocet-mexyl: 5.2

Auto-Ignition Temperature: Not available.

Decomposition Temperature: Not available.

Viscosity: 10 mPa·s.

Other Information: Not applicable.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical Stability: Stable under normal use and storage conditions.

Possibility of Hazardous Reactions: Combustible liquid. Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back.

Conditions to Avoid: Hot surfaces, open flames, sparks.

Incompatible Materials: No substances are known which lead to the formation of hazardous substances or thermal reactions.

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Dermal, inhalation, oral.

Symptoms of Acute Exposure: Harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. May be fatal if swallowed and enters airway. Causes skin and eye irritation.

Potential Health Effects: May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Low Acute Toxicity</u> Oral (LD50 Rat)	> 5,000 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u> Dermal (LD50 Rat)	> 5,000 mg/kg body weight
Inhalation:	<u>Low Acute Toxicity</u> Inhalation (LC50 Rat)	> 2.53 mg/L air – 4 hours
Eye Contact:	<u>Mildly Irritating (Rabbit)</u>	
Skin Contact:	<u>Severely Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

Specific Target Organ Toxicity (STOT) Single Exposure:

Pinoxaden:	Based on human evidence: may cause respiratory irritation, breathing difficulties, cough, acute irritation of the respiratory system leading to tightness of the chest and an asthmatic condition.
Cloquintocet-mexyl:	Not classified as a specific target organ toxicant, single exposure.

Specific Target Organ Toxicity (STOT) Repeated Exposure:

Pinoxaden:	No adverse effect has been observed in chronic toxicity tests.
Cloquintocet-mexyl:	Classified as a specific target organ toxicant, repeated exposure, category 2.

Carcinogenicity:

Pinoxaden:	Did not show carcinogenic effects in animal experiments.
Cloquintocet-mexyl:	Did not show carcinogenic effects in animal experiments.

Reproductive Toxicity:

Pinoxaden:	Did not show reproductive toxicity effects in animal experiments.
Cloquintocet-mexyl:	Did not show reproductive toxicity effects in animal experiments.

Mutagenicity:

Pinoxaden:	Did not show mutagenic effects in animal experiments.
Cloquintocet-mexyl:	Did not show mutagenic effects in animal experiments.

Aspiration Hazard:

Pinoxaden:	Not classified as an aspiration hazard.
Cloquintocet-mexyl:	Not classified as an aspiration hazard.

Toxicity of Other Components:

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

Petroleum solvent: Repeated exposure may cause skin dryness or cracking. If swallowed, may be aspirated and cause lung damage. May be irritating to the eyes, nose, throat and lungs. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light headedness, headache, nausea and loss of coordination.

Tetrahydrofurfuryl alcohol: May be harmful if swallowed. Causes respiratory tract irritation. May cause digestive tract irritation. Causes severe eye irritation. Inhalation overexposure may cause dizziness, incoordination and unconsciousness. Chronic overexposure may affect the kidney.

SECTION 12: ECOLOGICAL INFORMATION

Eco-Acute Toxicity:

Pinoxaden:

Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀	52 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀	10.3 ppm
Birds (8-day dietary – Bobwhite Quail) LC ₅₀	> 5,790 ppm

Cloquintocet-mexyl:

Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀	> 0.82 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀	> 0.97 ppm
Birds (14-day – Bobwhite Quail) LC ₅₀	> 2,000 ppm

Persistence & Degradability:

Pinoxaden: Low persistence in soil. Low persistence in water.
 Cloquintocet-mexyl: Low persistence in soil. Low persistence in water.

Bioaccumulation Potential:

Pinoxaden: BCF < 500; does not bioaccumulate.
 Cloquintocet-mexyl: BCF < 500; does not bioaccumulate.

Mobility in Soil:

Pinoxaden: Low mobility in soil.
 Cloquintocet-mexyl: Low mobility in soil.

Other Adverse Effects: Not applicable.

SECTION 13: DISPOSAL CONSIDERATIONS**Disposal Methods:**

Waste from residues: Refer to the product label for specific disposal/recycling information.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Refer to the product label for specific disposal/recycling information.
Empty remaining contents
Triple rinse containers
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not reuse empty containers.

SECTION 14: TRANSPORT INFORMATION**TDG Classification – Road/Rail:**

Not regulated as a dangerous good.

Water Transport – International (IMDG):

UN Number: UN 3082
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Pinoxaden/Cloquintocet-mexyl),
Marine Pollutant.
Transport Hazard Class: Class 9
Packing Group: PG III
Environmental Hazards: Marine pollutant.

Air Transport (IATA-DGR):

UN Number: UN 3082
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Pinoxaden/Cloquintocet-mexyl).
Transport Hazard Class: Class 9
Packing Group: PG III
Environmental Hazards: Environmentally hazardous.

Special Precautions for User:

Not applicable.

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable.

SECTION 15: REGULATORY INFORMATION

There are Canada-specific environmental requirements for handling, use and disposal of this pest control product that are indicated on the product label.

Hazardous Products Act Information:

This product has been classified in accordance with the amended Hazardous Products Act and the Hazard Criteria of the Hazardous Products Regulations (HPR), and the SDS contains all the information required by the HPR.

Hazardous Products Act Information: WHMIS 2015 Classification

This product is exempt under WHMIS 2015.

Pest Control Products Act (PCPA) Registration No.: 30431

Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.


This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:

PCPA Label Hazard Communications:

Read the label and booklet before using.

Keep out of reach of children.

Danger: Eye and Skin Irritant.

PCPA Hazard on Label: PCPA Precautionary Symbol:	Eye Irritant Not applicable.	GHS Hazard Classification: GHS Hazard Symbol:	Eye Irritation – Category 2B Not applicable.
PCPA Signal Word(s): PCPA Hazard Statement:	Danger Not applicable.	GHS Signal Word: GHS Hazard Statement:	Warning H320 – Causes eye irritation.
PCPA Hazard on Label: PCPA Precautionary Symbol:	Skin Irritant Not applicable.	GHS Hazard Classification: GHS Hazard Symbol:	Skin Irritation – Category 2 
PCPA Signal Word(s): PCPA Hazard Statement:	Danger Not applicable.	GHS Signal Word: GHS Hazard Statement:	Warning H325 – Causes skin irritation.

Allergens Contained in the Pest Control Product:

Not applicable.

NPRI Components:

Petroleum solvent.

SECTION 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant SDS. Hazardous properties of all ingredients have been considered in the preparation of this SDS. Read the entire SDS for the complete hazard evaluation of this product.

Full Text of Abbreviations:

AB – Province of Alberta

BC – Province of British Columbia

BCF – Bioconcentration factor

EC₅₀ – Effective concentration, 50%

GHS – Globally Harmonized System of Classification and Labeling of Chemicals

LC₅₀ – Lethal concentration, 50%LD₅₀ – Lethal dose, 50%

IARC – International Agency for Research on Cancer

IATA-DGR – International Air Transport Association Dangerous Goods Regulations

IMDG – International Maritime Code for Dangerous Goods

NTP – National Toxicology Program

ON – Province of Ontario

OSHA – Occupational Safety & Health Administration

PEL – Permissible Exposure Limit

TDG – Transportation of Dangerous Goods

TLV – Threshold Limit Value

QC – Province of Quebec

SDS – Safety Data Sheet

WHMIS – Workplace Hazardous Materials Information System

Changes since last revision: Layout updated to meet January 2018 PMRA Guidance for Preparing SDSs according to GHS for Pest Control Products in Canada.

Revision Date (Y-M-D): 2019-01-28

Supersedes Date (Y-M-D): 2016-05-28

Prepared by: Syngenta Canada Inc.

1-87-SYNGENTA (1-877-964-3682)

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END OF SAFETY DATA SHEET.

PMRA Approved English Label-RGIlao
Sub. No. 2020-2442, 2020-07-31

Booklet

GROUP	2	6	HERBICIDE
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BENZ

For weed control in field and succulent peas, dry faba beans, soybeans, dry beans and established red and alsike clover for seed production, and seedling and established alfalfa for seed, forage and hay

For sale for use in Manitoba, Saskatchewan, Alberta, Peace River Region and Interior of British Columbia Only

HERBICIDE

SOLUTION

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENTS: Imazamox 20 g/L
Bentazon (present as the sodium salt) 429 g/L

REGISTRATION NO. **33830**

PEST CONTROL PRODUCTS ACT

READ THE LABEL AND THIS BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN



WARNING

POISON

**EYE IRRITANT
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: 1 L - 1000 L, Bulk

Sharda Cropchem Limited
2nd Floor, Prime Business Park
Dashrathlal Joshi Road
Vile Parle (West)
Mumbai - 400056, India

Canadian Agent:
Sharda Cropchem Limited
63 Kingsview Blvd
Etobicoke, Ontario, CA
M9R 1V1
1-844-810-5720
1-416-840-5639

GENERAL INFORMATION

BENZ combines the two active ingredients: imazamox, belonging to herbicide mode of action Group 2, and bentazon belonging to the herbicide mode of action Group 6. Imazamox is a selective herbicide that when applied as an early post-emergence treatment may be absorbed through both the roots and foliage. Susceptible weeds stop growing and eventually die. Bentazon provides selective post-emergence control of many broadleaf weeds. Bentazon does not control grasses. Bentazon is a herbicide with mainly contact action. Uptake into the plant occurs primarily through the leaves. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in incomplete control of small weeds growing underneath.

Cool weather conditions or drought will delay herbicidal activity and if prolonged, may result in poor weed control. Use of **BENZ** in hot, humid weather may result in temporary leaf yellowing, leaf flecking, bronzing or burning. The crop usually outgrows this condition within 10 days (see Restrictions and Limitations).

REGISTERED CROPS

BENZ will provide broad-spectrum weed control of most annual grasses and broadleaf weeds in field and succulent peas, dry faba beans, soybeans, dry beans, established red and alsike clover for seed production, and seedling and established alfalfa for seed, forage and hay

DIRECTIONS FOR USE

APPLICATION INSTRUCTIONS

Field Peas, Dry Faba Beans and Soybeans

Timing	Early post-emergence
Rate	1.0 L/ha of BENZ + 2 L/ha nitrogen source* (UAN 28%)
Water Volume	100 L/ha
Weeds Controlled	BENZ will provide control of broadleaf and grass weeds as listed in the BROADLEAF WEED AND GRASS CONTROL section of this label.
Pre-harvest Interval	60 days
Remark	Application should be made from the 3 - 6 node stage of field peas and dry faba beans and the cotyledon to 4-leaf stage of soybeans and after weeds have emerged. Apply when broadleaf weeds are from the cotyledon to 4-leaf stage and when grassy weeds are at the 1 - 4 true leaf or early tillering. For field peas and dry faba beans, initial transient crop yellowing may be observed after application but this is outgrown and should not affect yield. DO NOT make more than one application per season.

* Nitrogen source: A reduction in grass control can be observed without the addition of a nitrogen source (UAN 28%)

Roundup Ready Soybean Varieties only

Timing	Early post-emergence
Rate	1.0 L/ha of BENZ + 900 – 1800 g a.e./ha glyphosate ¹ A nitrogen source (UAN 28%) is not required for control of volunteer glyphosate tolerant canola or weeds listed on the glyphosate label.
Water Volume	100 L/ha
Weeds Controlled	Volunteer glyphosate tolerant canola Consult the glyphosate label for weeds controlled by glyphosate. For additional weeds controlled by BENZ , include UAN 28% at 2 L/ha.
Pre-harvest Interval	60 days
Remark	Application should be made from the cotyledon to 4-leaf stage of soybeans and after weeds have emerged. Apply when volunteer canola is from the cotyledon to 4-leaf stage. Consult the glyphosate label for appropriate staging of weeds controlled by glyphosate. Read and observe all label directions, including rates, restrictions and grazing limitations for each product in the tank mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.
Warning	Apply this tank mix to Roundup Ready Soybean Varieties only, i.e. varieties with the Roundup Ready gene. SOYBEAN VARIETIES WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

¹ Consult the glyphosate label for rate and weeds controlled by glyphosate. Use only glyphosate products registered for post-emergence application to glyphosate tolerant soybean. A rate of 900 to 1800 g a.e./ha is equivalent to 1.67 to 3.33 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide (540 g a.e./L). Other glyphosate formulations may require a rate calculation adjustment according to product guarantee.

Dry Edible Beans (all types of the species *Phaseolus vulgaris*)

~~NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the uses described were developed by persons other than Sharda Cropchem Ltd. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Sharda Cropchem Ltd. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crop listed below. Accordingly, the Buyer and User assume all risks related to performance or crop tolerance arising and agree to hold Sharda Cropchem Ltd. harmless from any claims based on efficacy phytotoxicity in connection with the uses described below. The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Sharda Cropchem Limited under the User Requested Minor Use Label Expansion program. For these uses, Sharda Cropchem Limited has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.~~

BENZ may be topped up with application of **BASAGRAN® FORTE** as below for control of additional weeds.

Timing	Early post-emergence
Rate	1.0 L/ha of BENZ + 0.36 L/ha of BASAGRAN FORTE + 2 L/ha nitrogen source ² (UAN 28%)
Water Volume	100 L/ha
Weeds Controlled	BENZ will provide control of broadleaf and grass weeds as listed in the BROADLEAF WEED AND GRASS CONTROL section of this label.
Pre-harvest Interval	60 days
Remark	Application should be made after 1 st trifoliolate leaf has fully expanded up to the 2 nd trifoliolate leaf stage of the dry bean and after weeds have emerged. Apply when broadleaf weeds are from the cotyledon to 4-leaf stage and when grassy weeds are at the 1 to 4-true leaf or early tillering. Initial transient crop yellowing may be observed after application but this is outgrown and should not affect yield. DO NOT make more than one application per season.
Warning	Only the following dry bean types have been tested and demonstrate acceptable tolerance: Pinto, pink, red Mexican, cranberry, black, great northern and navy.

Read and observe all label directions, including rates, restrictions and grazing limitations for each product in the tank mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

1. *Dry common bean varieties may vary in their tolerance to herbicides, including to **BENZ**. In particular, white (navy) beans are more susceptible to herbicide injury which can result in delayed maturity. Since not all dry common bean varieties have been tested for tolerance to **BENZ**, first use of **BENZ** should be limited to a small area of each variety to confirm tolerance prior to adoption as a general field practice or consult your seed supplier or Sharda Cropchem Limited Business Representative for more information.*
- 4-2. *Nitrogen source: A reduction in grass control can be observed without the addition of a nitrogen source (UAN 28%).*

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~~NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Sharda Cropchem Ltd. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Sharda Cropchem Ltd. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crop listed below. Accordingly, the Buyer and User assume all risks related to performance or crop tolerance arising and agree to hold Sharda Cropchem Ltd. harmless from any claims based on efficacy phytotoxicity in connection with the uses described below. The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Sharda Cropchem Limited under the User Requested Minor Use Label Expansion program. For these uses, Sharda Cropchem Limited has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.~~

Established Red and Alsike Clover for Seed Production Only

Timing	Early post-emergence
Rate	1.0 L/ha of BENZ + 2 L/ha nitrogen source ¹ (UAN 28%)
Water Volume	100 L/ha
Weeds Controlled	BENZ will provide control of broadleaf and grass weeds as listed in the BROADLEAF WEED AND GRASS CONTROL section of this label.
Remark	DO NOT make more than one application per year. Application should be made before the crop canopy closes, prior to flowering, and when weeds are actively growing. Apply when broadleaf weeds are from the cotyledon to 4-leaf stage and when grassy weeds are at the 1 to 4-true leaf or early tillering. Crop injury may occur under hot, humid conditions. Speed of recovery will be influenced by growing conditions and weed control. Some leaf scorch may appear but the effect is transient and will outgrow within 3-4 weeks.

¹ A reduction in grass control can be observed without the addition of a nitrogen source (UAN 28%).

Succulent Peas	
Timing	Early post-emergence
Rate	1.0 L/ha of BENZ + 2 L/ha nitrogen source* (UAN 28%)
Water Volume	100 L/ha
Weeds Controlled	BENZ will provide control of broadleaf and grass weeds (except for sow thistle (annual and perennial)) as listed in the BROADLEAF WEED AND GRASS CONTROL section of this label.
Pre-harvest Interval	40 days
Remark	Application should be made from 3 – 6 nodes and after weeds have emerged. Apply when broadleaf weeds are from the cotyledon to 4-leaf stage and grassy weeds are 1-4 true leaves or early tillering. Initial transient crop yellowing may be observed after application but this is outgrown and should not affect yield. Do not spray under hot humid conditions to avoid any bronzing of the pea pods.
Warning	Since not all types of succulent peas have been tested, first application should be limited to a small area or consult your seed supplier or Sharda Cropchem Limited Business Representative for more information.

* A reduction in grass control can be observed without the addition of a nitrogen source (UAN 28%).

Succulent pea varieties may vary in their tolerance to herbicides, including to **BENZ**. Some varieties are more susceptible to herbicide injury which can result in delayed maturity. Since not all succulent pea varieties have been tested for tolerance to **BENZ**, first use of **BENZ** should be limited to a small area of each variety to confirm tolerance prior to adoption as a general field practice.

Seedling and Established Alfalfa for Seed, Forage and Hay

~~NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Sharda Cropchem Ltd. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Sharda Cropchem Ltd. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crop listed below. Accordingly, the Buyer and User assume all risks related to performance or crop tolerance arising and agree to hold Sharda Cropchem Ltd. harmless from any claims based on efficacy phytotoxicity in connection with the uses described below. The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Sharda Cropchem Limited under the User Requested Minor Use Label Expansion program. For these uses, Sharda Cropchem Limited has not fully assessed performance (efficacy) and/or crop~~

tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

For broad-spectrum weed control in alfalfa, **BENZ** must be topped up with an application of **BASAGRAN FORTE** at a rate of 360 mL/ha as indicated below.

Timing	Early post-emergence
Rate	1.0 L/ha of BENZ+ 360 mL/ha of BASAGRAN FORTE + 2 L/ha nitrogen source ¹ (UAN 28%) For top-growth control of Canada thistle, apply an application of BASAGRAN FORTE 7-15 days later at a rate of 1.75 L/ha.
Water Volume	100 L/ha
Weeds Controlled	Refer to the BROADLEAF WEED AND GRASS CONTROL section of this label for weeds controlled. The addition of 360 mL/ha of Basagran Forte to BENZ will provide control of the following additional weeds: Canada thistle (top-growth suppression)* Prostrate pigweed (suppression only) Spiny annual sowthistle (suppression only) Storks bill *For top growth control, an application of BASAGRAN FORTE 7-15 days later at a rate of 1.75 L/ha is required.
Pre-harvest Interval	DO NOT graze treated alfalfa or cut for hay within 20 days of application.
Remark	Apply as an early post-emergence treatment when weeds are actively growing. Application should be made when broadleaf weeds are from the cotyledon to 4-leaf stage and when grassy weeds are at the 1 to 4-true leaf or early tillering. Crop must be in the tolerant stage as indicated below: Seedling alfalfa: Tolerant after third trifoliolate stage. For seedling alfalfa grown for seed, apply prior to bud formation. Established Alfalfa: Tolerant before crop canopy closes, prior to flowering. Crop injury may occur under hot, humid conditions. Speed of recovery will be influenced by growing conditions and weed control. Some leaf scorch may appear but the effect is transient and will outgrow within 3-4 weeks.

A reduction in grass control can be observed without the addition of a nitrogen source (UAN 28%).

BROADLEAF WEED AND GRASS CONTROL

BENZ applied as an early post-emergence treatment at a rate of 1.0 L/ha + 2 L/ha nitrogen source (UAN 28%) will control weeds as listed below:

• Barnyard grass
• Cleavers* (including Group 2 resistant biotypes)
• Cow cockle
• Green foxtail
• Green smartweed
• Hemp nettle*
• Japanese brome grass*
• Kochia* (including Group 2 resistant biotypes)
• Lamb's-quarters
• Lentils (including Clearfield® Lentils ¹)
• Persian dandelion
• Redroot pigweed
• Round-leaved mallow*
• Russian thistle
• Shepherd's purse
• Sowthistle*, annual
• Sowthistle**, perennial
• Stinkweed
• Volunteer barley
• Volunteer canary seed
• Volunteer canola (Clearfield and non-Clearfield tolerant canola)
• Volunteer durum wheat
• Volunteer spring wheat (non-Clearfield tolerant wheat)
• Volunteer tame oats
• Wild buckwheat*
• Wild mustard (including Group 2 resistant)
• Wild oats
• Yellow foxtail

*= suppression only

**= top growth suppression only

BENZ + BASAGRAN FORTE applied as an early post-emergence treatment on dry edible beans at a rate of 1.0 L/ha + 0.36 L/ha **BASAGRAN FORTE** + 2 L/ha nitrogen source (UAN 28%) will provide control of the following weeds in addition to those listed above:

• Prostate pigweed*
• Spiny annual sowthistle*
• Storks bill

*= suppression only

MIXING INSTRUCTIONS

1. When applying **BENZ**, always start with a clean sprayer. Thoroughly clean the sprayer by flushing the system with water containing detergent. Refer to previously applied product labels for specific cleaning instructions.
2. Fill clean spray tank three-quarters of the required amount of clean water and start agitation.
3. Add the correct amount of **BENZ**. Continue to agitate.
4. Add the correct amount of **BASAGRAN FORTE** for dry beans. Continue to agitate.
5. Add the correct amount of the nitrogen source while continuing agitation.
6. Continue agitation while filling the spray tank with the remaining amount of water.
7. Maintain continuous and constant agitation throughout application until spraying is complete.
8. After any break in spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to remix the spray materials. Do not allow the mixture to sit overnight.
9. If an oil film starts to build up in the tank, drain it and clean the tank with strong detergent solution.
10. Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent. Thoroughly flush tank, boom, hoses and in-line and nozzle screens with clean water to avoid possible injury to other crops.

Dispose of all rinsings in accordance with provincial regulations.

SPRAYING INSTRUCTIONS

Select proper nozzle to avoid spraying fine mist. For best results, use sprayers equipped with flat fan or similar nozzles to ensure coverage. Apply in a spray volume of 100 L/ha and at a pressure of 275 kPa. For applications to dense weed infestations and thick canopies, use the higher spray volume. Better coverage of the product results in enhanced control of weeds.

Keep bypass line on or near bottom of tank to minimize foaming. Use 16 mesh suction screens, 50 mesh screens elsewhere on sprayer.

FOLLOW CROPPING

Winter wheat can be planted 3 months after treatment (3 MAT) as a rotational crop.

Initial crop injury to non-**Clearfield** canola may be observed. Avoid spray overlap as yield reduction may result. The following crops may be grown safely the year following an application:

- Canary seed
- Field corn
- Field peas
- Soybeans
- Clearfield** Canola¹ (e.g., canola varieties with the **Clearfield** trait)
- Non-**Clearfield** canola
- Lentils

Spring wheat
Durum wheat
Spring barley
Sunflower
Tame oats
Flax
Chickpeas
Clearfield Sunflowers¹ (e.g., sunflower varieties with the **Clearfield** trait)

¹Research studies have shown that non-Clearfield canola may be safely planted the year following an application of **BENZ** in all regions of Western Canada except the Northern Peace River Region of Alberta (any area in Township 100 and north, including the areas of Keg River, La Crete, Fort Vermilion and High Level). In this region, non-Clearfield canola can be grown safely the second year following an application (2 YAT).

The following crop may be grown safely two years following an application:

Mustard (condiment type only)

There are insufficient data for other follow crops. Conduct a field bioassay (a test strip grown to maturity) the year before growing any crop other than those listed above.

RESTRICTIONS AND LIMITATIONS

1. **DO NOT** apply when weather conditions may cause spray drift from treated fields to adjacent crops. Clean sprayer thoroughly after use to avoid damage to the next crop sprayed.
2. Apply using ground equipment only. **DO NOT APPLY BY AIR.**
3. **DO NOT** enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
4. **DO NOT** apply directly to water. **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
5. **DO NOT** graze the treated dry bean and field pea crops or cut for hay; sufficient data are not available to support such use.
6. **DO NOT** graze treated soybeans or cut for hay within 20 days of application.
7. **DO NOT** treat any crops not listed on this label.
8. **DO NOT** apply to any crops that have been subjected to stress from conditions such as hail damage, flooding, drought, hot, humid weather, widely fluctuating temperature conditions, prolonged cold weather or injury from prior herbicide applications, as crop injury may result.
9. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational area is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
10. In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Sharda Cropchem Limited at 1-844-810-5720 for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. ~~The user assumes the risk of losses that result~~

~~from the use of tank mixes that do not appear on this label or that are not specifically recommended by Sharda Cropchem Limited.~~

WARNING

1. **DO NOT** apply **BENZ** when weather conditions may cause spray drift from treated areas to adjacent crops.
2. Lentils, adzuki and mung beans, cucumbers, sugar beets and sunflowers can be injured by **BENZ**.

SPRAY DRIFT MANAGEMENT FOR GROUND APPLICATION

Field Sprayer Application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the weed canopy or ground.

DO NOT apply using aerial application equipment.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

Buffer Zones

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands).

Method of Application	Crop	Buffer zones (metres) Required for the Protection of Terrestrial Habitat:
Field sprayer*	Field and succulent peas, dry faba beans, soybeans, dry beans, established red and alsike clover, and alfalfa	1

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides and Pest Management Regulatory Agency website.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, **BENZ** is both a Group 2 and a Group 6 herbicide. Any weed population may contain or develop plants naturally resistant to **BENZ** and other Group 2 and 6 herbicides. The resistant biotypes may dominate the weed population if these herbicides are

used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **BENZ** or other Group 2 and 6 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Sharda Cropchem Limited at 1-844-810-5720.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. **DO NOT** take internally. Harmful or fatal if swallowed.
3. **DO NOT** get in eyes or on skin. Causes eye irritation.
4. Potential skin sensitizer.
5. Wash exposed areas of skin thoroughly after handling and before eating, drinking or smoking or going to the washroom. Take a shower immediately after work.
6. Wear a long-sleeved shirt, long pants and chemical resistant gloves during mixing, loading, application, clean-up and repair. In addition, wear goggles or face shield during mixing and loading. Gloves and protective eyewear are not required when applying in a closed cab.

7. If clothing becomes contaminated, remove immediately and wash. Store and wash all protective clothing separately from household laundry. Wash in detergent and hot water before reuse. Wear freshly laundered clothes daily.
8. **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) or to estuarine/marine habitats.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continuing rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS

Observe the buffer zones and precautionary measures specified under DIRECTIONS FOR USE.

Toxic to non-target terrestrial plants.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of BENZ in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

STORAGE

1. Store the product in original, tightly-closed container and do not allow water to be introduced into this container.
2. **DO NOT** ship or store the product near food, feed, seed or fertilizers.
3. Store the product in a cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross contamination.

DISPOSAL

Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Returnable-Refillable Containers

For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

¹*Methods of growing plants which are resistant to certain acetohydroxyacid synthase (AHAS) herbicides are protected by Canadian Patent No. 1341465. The use of this product in the practice of patented methods could constitute patent infringement. The purchase of this product conveys no license to the purchaser to practice the patented methods.*

Container Label

GROUP	2	6	HERBICIDE
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BENZ

For weed control in field and succulent peas, dry faba beans, soybeans, dry beans, established red and alsike clover for seed production, and seedling and established alfalfa for seed, forage and hay

For sale for use in Manitoba, Saskatchewan, Alberta, Peace River Region and Interior of British Columbia Only

HERBICIDE

SOLUTION

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENT: Imazamox 20 g/L
Bentazon (present as the sodium salt) 429 g/L

REGISTRATION NO. 33830

PEST CONTROL PRODUCTS ACT

**READ THE LABEL AND THIS BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**



WARNING

POISON

**EYE IRRITANT
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: 1 L - 1000 L, Bulk

Sharda Cropchem Limited
2nd Floor, Prime Business Park
Dashrathlal Joshi Road
Vile Parle (West)
Mumbai - 400056, India

Canadian Agent:
Sharda Cropchem Limited
63 Kingsview Blvd
Etobicoke, Ontario, CA
M9R 1V1
1-844-810-5720
1-416-840-5639

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. **DO NOT** take internally. Harmful or fatal if swallowed.
3. **DO NOT** get in eyes or on skin. Causes eye irritation.
4. Potential skin sensitizer.
5. Wash exposed areas of skin thoroughly after handling and before eating, drinking or smoking or going to the washroom. Take a shower immediately after work.
6. Wear a long-sleeved shirt, long pants and chemical resistant gloves during mixing, loading, application, clean-up and repair. In addition, wear goggles or face shield during mixing and loading. Gloves and protective eyewear are not required when applying in a closed cab.
7. If clothing becomes contaminated, remove immediately and wash. Store and wash all protective clothing separately from household laundry. Wash in detergent and hot water before reuse. Wear freshly laundered clothes daily.
8. **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) or to estuarine/marine habitats.
9. Do not enter or allow workers entry into treated areas during the restricted entry interval (REI) of 12 hours.
10. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice.

Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continuing rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS

Observe the buffer zones and precautionary measures specified under DIRECTIONS FOR USE.

Toxic to non-target terrestrial plants.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of BENZ in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

STORAGE

1. Store the product in original, tightly-closed container and do not allow water to be introduced into this container.
2. **DO NOT** ship or store the product near food, feed, seed or fertilizers.
3. Store the product in a cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross contamination.

DISPOSAL

Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Returnable-Refillable Containers

For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : BENZ
Name : Imazamox 20 g/L +Bentazone (présent sous forme de sel de sodium) 429 g/L é.a.
Registration # : 33830

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Herbicide

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Sharda Cropchem Ltd.
2nd Floor, Prime Business Park, Dashrathlal Joshi Road, Vile Parle (West)
400056 Mumbai - India
T + 91 22 6261 5615 - F + 91 22 6678 2828
regn@shardaintl.com

1.4. Emergency telephone number

Emergency number : +91 22 6678 2800 (08-16h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 4 H302
Serious eye damage/eye irritation, Category 2 H319
Skin sensitisation, Category 1 H317
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS07

Signal word (CLP) : Warning
Hazardous ingredients : bentazone (ISO); 3-isopropyl-2,1,3-benzothiadiazine-4-one-2,2-dioxide
Precautionary statements (CLP) : P262 - Do not get in eyes, on skin, or on clothing.
P264 - Wash hands, forearms and face thoroughly after handling.
P102 - Keep out of reach of children.

2.3. Other hazards

No additional information available

BENZ

Safety Data Sheet

according to Regulation (EU) 2015/830

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limits
bentazone (ISO); 3-isopropyl-2,1,3-benzothiadiazine-4-one-2,2-dioxide	(CAS-No.) 25057-89-0 (EC-No.) 246-585-8 (EC Index-No.) 613-012-00-1	36.51	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 3, H412	
sodium hydroxide; caustic soda	(EC-No.) 215-185-5 (EC Index-No.) 011-002-00-6	5-10	Skin Corr. 1A, H314	(0.5 ≤C < 2) Skin Irrit. 2, H315 (0.5 ≤C < 2) Eye Irrit. 2, H319 (2 ≤C < 5) Skin Corr. 1B, H314 (5 ≤C < 100) Skin Corr. 1A, H314
imazamox (ISO); (RS)-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)-5-methoxymethylnicotinic acid	(CAS-No.) 114311-32-9 (EC Index-No.) 613-208-00-7	1.70	Aquatic Acute 1, H400 Aquatic Chronic 1, H410	

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Move the affected person away from the contaminated area and into the fresh air. If not breathing, give artificial respiration. Call a doctor.
First-aid measures after skin contact	: Remove contaminated clothes. After contact with skin, wash immediately and thoroughly with water and soap.
First-aid measures after eye contact	: Wash with plenty of water (during 20 minutes minimum) with eyes wide open after taking off soft contact lenses and immediately take medical advice.
First-aid measures after ingestion	: Rinse mouth. Immediately call a POISON CENTER/doctor.

4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: In case of fire and/or explosion do not breathe fumes.
Reactivity in case of fire	: Product is not explosive.
Hazardous decomposition products in case of fire	: Carbon monoxide. Nitrogen oxides. Carbon dioxide. Toxic fumes may be released.

5.3. Advice for firefighters

Precautionary measures fire : Keep container tightly closed and away from heat, sparks and flame. Keep away from combustible materials.

BENZ

Safety Data Sheet

according to Regulation (EU) 2015/830

Firefighting instructions	: Appropriate self-contained breathing apparatus may be required. Get the package away from the fire if this can be done without risk. Prevent fire fighting water from entering the environment.
Protection during firefighting	: Wear fire/flame resistant/retardant clothing. Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	: Do not allow material to contaminate surface water system.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	: Wear suitable protective clothing, gloves and eye or face protection. Chemical resistant gloves (according to European standard NF EN 374 or equivalent). EN 166. Wear eye protection. Personal protective equipment. EN ISO 20345.
Emergency procedures	: Evacuate personnel to a safe area.

6.1.2. For emergency responders

Protective equipment	: Wear suitable hand, body and head protection.
----------------------	---

6.2. Environmental precautions

Danger of pollution of drinking water when product enters the soil. Do not allow run-off from fire fighting to enter drains or water courses. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	: Label the container and provide warning statements to prevent any contact.
Methods for cleaning up	: Soak up with inert absorbent material (for example sand, sawdust, a universal binder, silica gel). Clean spills promptly. Wash contaminated area with large amounts of water.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Do not allow run-off from fire fighting to enter drains or water courses. Do not contaminate water with the product or its container (Do not clean application equipment near surface water/Avoid contamination via drains from farmyards and roads).
Precautions for safe handling	: Avoid contact with skin and eyes. Do not eat, drink or smoke in areas where product is used. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Remove contaminated clothing and shoes. Wash clothing and equipment after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Ensure adequate ventilation, especially in confined areas. Store locked up.
Storage conditions	: Keep only in original container. Store in a dry place. Store in a closed container. Store in a well-ventilated place. Protect from sunlight.
Storage temperature	: 0 – 30 °C
Packaging materials	: Keep only in the original container in a cool, well-ventilated place away from combustible materials.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

BENZ

Safety Data Sheet

according to Regulation (EU) 2015/830

8.2. Exposure controls

Hand protection:

Chemical resistant gloves (according to European standard NF EN 374 or equivalent)

Eye protection:

EN 166. Eye protection, including both chemical splash goggles and face shield, must be worn when possibility exists for eye contact due to spraying liquid or airborne particles

Skin and body protection:

Long sleeved protective clothing

Respiratory protection:

Extra personal protection: P2 filter respirator for harmful particles. Extra personal protection: P3 filter respirator for toxic particles

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: No data available
Odour	: No data available
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions of use.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Stable under normal conditions of use.

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according to Regulation (EU) 2015/830

10.4. Conditions to avoid

Heat. High temperature. Open flame. Direct sunlight.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

bentazone (ISO); 3-isopropyl-2,1,3-benzothiadiazine-4-one-2,2-dioxide (25057-89-0) (Data on active substance)

LD50 oral rat	1400 – 1800 mg/kg bodyweight
LD50 dermal rat	> 5000 mg/kg bodyweight
LC50 inhalation rat (mg/l)	> 5.1 mg/l/4h

imazamox (ISO); (RS)-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)-5-methoxymethylnicotinic acid (114311-32-9) (Data on active substance)

LD50 oral rat	> 5000 mg/kg bodyweight
LD50 dermal rat	> 4000 mg/kg bodyweight
LC50 inhalation rat (mg/l)	> 6.3 mg/l/4h

Skin corrosion/irritation : Not classified.
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitisation : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Harmful to aquatic life with long lasting effects.

bentazone (ISO); 3-isopropyl-2,1,3-benzothiadiazine-4-one-2,2-dioxide (25057-89-0) (Data on active substance)

LC50 fish 1	> 100 mg/l (96 h, <i>Oncorhynchus mykiss</i>)
EC50 Daphnia 1	> 100 mg/l (48 h, <i>Daphnia magna</i>)
EC50 72h algae (1)	33.3 mg/l (72 h, <i>Pseudokirch subcap.</i>)
ErC50 (other aquatic plants)	12 mg/l (7 d, <i>Lemna gibba</i>)

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imazamox (ISO); (RS)-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)-5-methoxymethylnicotinic acid (114311-32-9) (Data on active substance)

LC50 fish 1	> 122 mg/l (96 h, <i>Oncorhynchus mykiss</i>)
LC50 fish 2	> 119 mg/l (96 h, <i>Lepomis macrochirus</i>)
EC50 Daphnia 1	> 122 mg/l (48 h, <i>Daphnia magna</i>)
ErC50 (algae)	> 0.037 mg/l (120 h, <i>Selenastrum capricornutum</i>)
ErC50 (other aquatic plants)	0.011 mg/l (14 d, <i>Lemna gibba</i>)
NOEC (chronic)	0.0045 mg/l (14 d, <i>Lemna gibba</i>)
NOEC chronic fish	122 mg/l (28 d, <i>Oncorhynchus mykiss</i>)
NOEC chronic crustacea	137 mg/l (21 d, <i>Daphnia magna</i>)
NOEC chronic algae	0.037 mg/l (120 h, <i>Selenastrum capricornutum</i>)

12.2. Persistence and degradability

bentazone (ISO); 3-isopropyl-2,1,3-benzothiadiazine-4-one-2,2-dioxide (25057-89-0)

Persistence and degradability	Not established.
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imazamox (ISO); (RS)-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)-5-methoxymethylnicotinic acid (114311-32-9)

Persistence and degradability	Not readily biodegradable.
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12.3. Bioaccumulative potential

bentazone (ISO); 3-isopropyl-2,1,3-benzothiadiazine-4-one-2,2-dioxide (25057-89-0)

Partition coefficient n-octanol/water (Log Pow)	-0.94 (pH 7, 20 °C)
---	---------------------

imazamox (ISO); (RS)-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)-5-methoxymethylnicotinic acid (114311-32-9)

BCF fish 1	< 1
Partition coefficient n-octanol/water (Log Pow)	< -2.9 (pH 7, 20 °C)

12.4. Mobility in soil

bentazone (ISO); 3-isopropyl-2,1,3-benzothiadiazine-4-one-2,2-dioxide (25057-89-0)

Surface tension	70 mN/m (2%)
-----------------	--------------

imazamox (ISO); (RS)-2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)-5-methoxymethylnicotinic acid (114311-32-9)

Surface tension	68.5 mN/m (20.2 °C)
-----------------	---------------------

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Avoid release to the environment. Disposal must be done according to official regulations. Do not dispose of the packaging without first carrying out the necessary cleaning. Refer to manufacturer/supplier for information on recovery/recycling.






BENZ

Safety Data Sheet


according to Regulation (EU) 2015/830

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 3082	UN 3082	UN 3082	UN 3082	UN 3082
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

Transport regulations (TDG)	: Not regulated by TDG when transported solely on land by road or railway vehicle.
Transport regulations	: Not Regulated
Classification code (ADR)	: M6
Special provisions (ADR)	: 274, 335, 375, 601
Limited quantities (ADR)	: 5I
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P001, IBC03, LP01, R001
Special packing provisions (ADR)	: PP1
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T4
Portable tank and bulk container special provisions (ADR)	: TP1, TP29
Tank code (ADR)	: LGBV
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV13
Hazard identification number (Kemler No.)	: 90
Orange plates	: 
Tunnel restriction code (ADR)	: -

BENZ

Safety Data Sheet

according to Regulation (EU) 2015/830

Transport by sea

Special provisions (IMDG)	: 274, 335, 969
Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: LP01, P001
Special packing provisions (IMDG)	: PP1
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T4
Tank special provisions (IMDG)	: TP2, TP29
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-F
Stowage category (IMDG)	: A

Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y964
PCA limited quantity max net quantity (IATA)	: 30kgG
PCA packing instructions (IATA)	: 964
PCA max net quantity (IATA)	: 450L
CAO packing instructions (IATA)	: 964
CAO max net quantity (IATA)	: 450L
Special provisions (IATA)	: A97, A158, A197
ERG code (IATA)	: 9L

Inland waterway transport

Classification code (ADN)	: M6
Special provisions (ADN)	: 274, 335, 375, 601
Limited quantities (ADN)	: 5 L
Excepted quantities (ADN)	: E1
Equipment required (ADN)	: PP
Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: M6
Special provisions (RID)	: 274, 335, 375, 601
Limited quantities (RID)	: 5L
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P001, IBC03, LP01, R001
Special packing provisions (RID)	: PP1
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T4
Portable tank and bulk container special provisions (RID)	: TP1, TP29
Tank codes for RID tanks (RID)	: LGBV
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W12
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW31
Colis express (express parcels) (RID)	: CE8
Hazard identification number (RID)	: 90

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

BENZ

Safety Data Sheet

according to Regulation (EU) 2015/830

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Other information, restriction and prohibition regulations : according to Regulation (EU) 2015/830.

15.1.2. National regulations

Refer to protective measures listed in Sections 7 and 8

15.2. Chemical safety assessment

Refer to protective measures listed in Sections 7 and 8

SECTION 16: Other information

Classification according to Regulation (EC) No. 1272/2008 [CLP]:

Acute Tox. 4 (Oral)	H302
Eye Irrit. 2	H319
Skin Sens. 1	H317

Full text of H- and EUH-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Other data

Date of issue: 04/08/2020
Version: 0.0/EN
Replaces: -
Indication of changes: -

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Container label

GROUP	3	FUNGICIDE
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BUMPER 418 EC

FUNGICIDE

COMMERCIAL

Emulsifiable Concentrate for:

Broad-spectrum disease control in Wheat, Barley, Oats, Canola,
Corn and Soybeans (grown for seed), Dry Edible Beans and for the suppression of
Septoria Leaf Mottle on Canary Seed and Peaches, Nectarines, Plums,
Sweet Cherries, Sour Cherries, Apricots, Highbush and Lowbush Blueberries,
Saskatoon Berries, Cranberries, Caneberries, Strawberries, Rutabagas, Asparagus, Western Red
Cedar, and Kentucky Bluegrass Grown for Seed.

GUARANTEE:

Propiconazole 418 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

REGISTRATION NO.: 28017

PEST CONTROL PRODUCTS ACT

WARNING



POISON

WARNING

EYE AND SKIN IRRITANT

POTENTIAL SKIN SENSITIZER

Net Contents: 1-1050 litres

Adama Agricultural Solutions Canada Ltd.

302 - 179 McDermot Avenue
Winnipeg, MB R3B 0S1
855-264-6262

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID:

Contains petroleum distillates at greater than 10%.

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take the container label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

There is no specific antidote for this product. Apply symptomatic therapy. This product contains PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia.

PRECAUTIONS:

KEEP OUT OF THE REACH OF CHILDREN. Do not get in eyes, on skin or on clothing. Avoid breathing spray mist or vapours. Harmful or fatal if swallowed, inhaled or absorbed through the skin. Causes eye and skin irritation. This product may cause skin-sensitization reactions in certain individuals.

Wear long pants, a long sleeve shirt, chemical resistant footwear and socks, overalls and chemical-resistant gloves during mixing/loading, application, clean-up and repair activities. Wear protective goggles or faceshield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used.

Do not eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separately from other laundry before reuse. Do not contaminate food or feed.

NOTE: Do not graze animals on treated green crops within three days of application of BUMPER 418 EC fungicide.

For fruit and specialty crops as listed, do not graze livestock on treated green crops.

This product contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

For listed crops other than fruit and specialty crops, DO NOT allow entry into treated area for 12 hours following application. See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca

STORAGE: To prevent contamination, store this product away from food or feed.

DISPOSAL:

DISPOSAL OF UNUSED, UNWANTED PRODUCT:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

For recyclable containers:

DO NOT REUSE THIS CONTAINER FOR ANY PURPOSE. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING CALL 1-800-535-5053.

ENVIRONMENTAL HAZARDS:

Toxic to aquatic organisms and non-target terrestrial plants. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland.

BUMPER 418 EC

FUNGICIDE

COMMERCIAL

Emulsifiable Concentrate for:
Broad-spectrum disease control in Wheat, Barley, Oats, Canola,
Corn and Soybeans (grown for seed), Dry Edible Beans and for the suppression of
Septoria Leaf Mottle on Canary Seed and
Peaches, Nectarines, Plums,
Sweet Cherries, Sour Cherries, Apricots, Highbush and Lowbush Blueberries,
Saskatoon Berries, Cranberries, Caneberries, Strawberries, Rutabagas, Asparagus, Western Red
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FIRST AID:

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IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take the container label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

There is no specific antidote for this product. Apply symptomatic therapy. This product contains PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia.

PRECAUTIONS:

KEEP OUT OF THE REACH OF CHILDREN. Do not get in eyes, on skin or on clothing. Avoid breathing spray mist or vapours. Harmful or fatal if swallowed, inhaled or absorbed through the skin. Causes eye and skin irritation. This product may cause skin-sensitization reactions in certain individuals.

Wear long pants, a long sleeve shirt, chemical resistant footwear, and socks overalls and chemical-resistant gloves

during mixing/loading, application, clean-up and repair activities. Wear protective goggles or faceshield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used.

Do not eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separately from other laundry before reuse. Do not contaminate food or feed.

For listed crops other than fruit and specialty crops, DO NOT allow entry into treated area for 12 hours following application. See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

NOTE: Do not graze animals on treated green crops within three days of application of BUMPER 418 EC fungicide.

For fruit and specialty crops as listed, do not graze livestock on treated green crops.

This product contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca

STORAGE: To prevent contamination, store this product away from food or feed.

DISPOSAL:

DISPOSAL OF UNUSED, UNWANTED PRODUCT:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

For recyclable containers:

DO NOT REUSE THIS CONTAINER FOR ANY PURPOSE. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

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If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING CALL 1-800-535-5053.

ENVIRONMENTAL HAZARDS:

Toxic to aquatic organisms and non-target terrestrial plants. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland.

DIRECTIONS FOR USE:

DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Airblast application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is

greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 m/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotor span.

GENERAL INFORMATION:

Introduction: BUMPER 418 EC is a broad-spectrum systemic fungicide for control of a wide range of diseases on certain crops. BUMPER 418 EC fungicide will protect the crop from yield and quality losses due to disease. BUMPER 418 EC may be used in conjunction with higher seeding rates, higher fertilizer inputs, plant growth regulators and other fungicides as required. (See “NOTE” under PRECAUTIONS)

DO NOT use in greenhouses.

Crop Information: BUMPER 418 EC may be applied to:

Winter Wheat
Spring Wheat (including Hard Red, Durum, Canada Prairie, Soft White)
Spring Barley
Oats
Canola
Corn (including Field, Seed and Sweet)
Soybeans (grown for seed)
Canary Seed
Dry Edible Beans (including kidney, navy and white bean)

Diseases Controlled:

Winter Wheat and Spring Wheat (including Hard Red, Durum, Canada Prairie, Soft White)	Septoria Leaf Spot; Septoria Glume Blotch; Powdery Mildew; Leaf and Stem Rust; Tan Spot; Stripe Rust
Spring Barley	Net Blotch; Spot Blotch; Scald; Powdery Mildew; Septoria Leaf Spot; Leaf Rust; Stem Rust
Oats	Septoria Leaf Blotch; Crown Rust
Canola	Blackleg
Corn	Rusts, Northern Corn Leaf Blight, Southern Corn Leaf Blight, Helminthosporium Leaf Spot, Eye Spot, Grey Leaf Spot
Soybeans (grown for seed)	Frogeye Leaf Spot (<i>Cercospora spp.</i>), Aerial Web

Canary Seed
Dry Edible Beans (including kidney, navy
and white beans)

Blight (*Rhizoctonia solani*)
Septoria Leaf Mottle
Rust

Factors Affecting BUMPER 418 EC Performance: BUMPER 418 EC should be applied as a preventative disease control measure. Established diseases are more difficult to control and may have already reduced crop vigour.

If rainfall occurs within one hour of application, reapplication is necessary.

AERIAL APPLICATION:

DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. High humidity and low temperatures (10 – 20°C) allow for a better deposition of spray droplets.

SPRAYER AND APPLICATION INFORMATION:

The performance of this product depends on correct application. Follow the guidelines given below for optimal application of BUMPER 418 EC.

Sprayer Information:

	GROUND APPLICATION	AERIAL APPLICATION
Spray Volume	Minimum 200 L of water per hectare	40 - 50 L of water per hectare
Spray Pressure	200 - 300 kPa	100 - 200 kPa
Nozzle Type	110° Flat Fan (XR11004, 4110-20)	Flat Fan 6510-6515 or Hollow Cone (D8-45)
Droplet Size	Medium Spray (300 - 400 microns VMD)	Medium Spray (350 - 400 microns VMD)
Ground Speed	10 km/h	
Nozzle Angle	90° (straight down)	90° (straight down)
Boom Height	40-50 cm above the crop canopy	2-3 m above the crop canopy

Ground Application:

Mixing and Spraying Instructions:

- Spray equipment should be thoroughly flushed with clean water before mixing BUMPER 418 EC.
- Fill spray tank 1/2 full with clean water. Engage gentle agitation.
- Add the required amount of BUMPER 418 EC and agitate thoroughly.

- Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tank mix partner.
- Complete filling the spray tank with water, maintaining agitation during mixing and spraying operations.
- Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Aerial Application:

Mixing and Spraying Instructions:

- Spray equipment should be thoroughly flushed with clean water before mixing BUMPER 418 EC.
- Fill premix tank 1/2 full with clean water. Engage gentle agitation.
- Add the required amount of BUMPER 418 EC and agitate thoroughly.
- Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tank mix partner.
- Complete filling the premix tank with water.
- Maintain gentle agitation during mixing.
- Transfer the premix contents into the aircraft spray tank.
- Maintain sufficient agitation during the mixing and spraying operation to ensure BUMPER 418 EC remains in suspension.
- Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for a specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

AERIAL APPLICATION USE PRECAUTIONS:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as

outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Coarse sprays are less likely to drift; therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty.

AERIAL APPLICATION OPERATOR PRECAUTIONS:

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

PRODUCT SPECIFIC PRECAUTIONS:

Read and understand the entire label before opening this product. If you have questions call the manufacturer at 1-212-661-9800 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this specific product must meet and/or conform to the following:

Apply the recommended rate in a minimum spray volume of 40 litres per hectare.

Fertilizer:

Mixing and Spraying Instructions:

If desired, small amounts of nitrogen may be applied with BUMPER 418 EC. The appropriate amount of urea can be dissolved in water and added to the spray tank before adding BUMPER 418 EC. The rate of actual nitrogen must not exceed 10 kg/ha.

CAUTION: Excessive nitrogen concentrations may injure the crop.

NOTE: DO NOT add nitrogen when tank-mixing BUMPER 418 EC with an herbicide.

Buffer zones:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method Of Application	Crop		Buffer Zones (metres) Trquired for the Protection of:				Terrestrial habitat
			Freshwater Habitats of Depths:		Estuarine/Marine Habitats of Depths:		
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer*	Beans , soybeans, corn, wheat, oats, canary seed, canola, barley,		1	0	1	1	1
Aerial	beans, corn, oats, wheat, barley	Fixed Wing	1	0	3	1	20
		Rotary Wing	1	0	1	1	20
Field sprayer*	rutabagas, cranberries, asparagus, Kentucky bluegrass, Western red cedar		1	0	1	1	1
Airblast	Cherries	Early Growth Stage	5	0	10	3	10
		Late Growth Stage	2	0	4	2	4
	Blueberries, apricots, nectarines, peaches, plums, Saskatoon berries,	Early Growth Stage	4	0	5	2	5
		Late Growth Stage	2	0	3	1	3

Aerial	Blueberries, Kentucky bluegrass (seed prod.)	Fixed Wing	1	0	3	1	20
		Rotary Wing	1	0	1	1	20

For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled bufferzone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

WHEAT, BARLEY AND OATS SPRAY SCHEDULE INSTRUCTIONS FOR USE:

Apply BUMPER 418 EC at the very early stages of disease. This could occur anytime during tillering or stem elongation. Typically, an application from the beginning of stem elongation up to flag leaf emergence is required.

BUMPER 418 EC lasts about three weeks in the plant. If conditions favourable to disease continue after this length of time, another application will be necessary to maintain control. The second spray is usually applied at the time of head emergence. In most cases, this second application is essential to maintain control of the Septoria disease complex.

CROP/DISEASE	RATE/HA	EARLY APPLICATION	LATER APPLICATION	MAXIMUM NUMBER OF APPLICATIONS PER SEASON
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CROP/DISEASE	RATE/HA	EARLY APPLICATION	LATER APPLICATION	MAXIMUM NUMBER OF APPLICATIONS PER SEASON
WHEAT Septoria Leaf Spot and Tan Spot SPRING BARLEY * Net Blotch	150-300 mL	At Growth Stage (G.S). 12-23 (as early as the two leaf stage). For early season disease suppression, use the lower rate for suppression under normal field conditions. Use the higher rate for control if there is a history of high disease pressures in the field and/or field conditions favour disease development.	At the first sign of disease (G.S. 29-37) or before head is half emerged (G.S. 49-55). Apply only the high rate on any application from G.S. 29-55.	2
WHEAT Septoria Leaf Spot and Glume Blotch, Powdery Mildew, Leaf and Stem Rust, Tan Spot, Stripe Rust SPRING BARLEY Net Blotch, Spot Blotch, Scald, Powdery Mildew Septoria Leaf Spot, Leaf and Stem Rust OATS Septoria Leaf Blotch, Crown Rust	300 mL	At the first sign of disease, usually at the beginning of stem elongation (G.S. 29-37)	Before head is half emerged (G.S. 49-55)	
LAST APPLICATION MUST BE MADE AT LEAST 45 DAYS BEFORE HARVEST.				

HERBICIDE TANK-MIXING - WHEAT & BARLEY:

BUMPER 418 EC can be tank-mixed with ONLY ONE of these herbicides at a time:
See tank mix partner label for rate to use

2,4-D Amine	Estemine 2,4-D®
MCPA Amine	Estemine MCPA®
Badge Emulsifiable Selective Weedkiller	Bromotril 240 EC

Tank-mixing Precautions:

- Do not tank-mix BUMPER 418 EC with herbicides for application onto Oats.
- Weeds and crops must be at the correct stage of growth as specified in both the BUMPER 418 EC label and the tank mix partner label.
- 2,4-D and MCPA formulations may be applied either by ground application or aerial application; tank-mixtures of BUMPER 418 EC and Badge Emulsifiable Selective Weedkiller or Bromotril 240 EC can only be applied by ground application.
- Consult the label of the herbicide partner for a list of weeds controlled, directions for use and precautions.
- Compatibility should always be confirmed by premixing small proportional quantities of water, BUMPER 418 EC, and the tank-mix partner in advance.

NOTE: Do not graze animals on treated green crops within three days of application of BUMPER 418 EC. Do not feed straw from crops treated with herbicide tank mixes to livestock. For fruit and specialty crops as listed, do not graze livestock on treated green crops.

HERBICIDE TANK-MIXING – WHEAT

FOR USE ONLY IN THE PRAIRIE AND PEACE RIVER, OKANAGAN AND CRESTON FLATS REGIONS OF BRITISH COLUMBIA.

BUMPER 418 EC can be tank-mixed with LADDER 240 EC Herbicide for disease and grassy weed control.

Tank-mixing Precautions:

- Do not apply by air.
- Consult the label of LADDER 240 EC Herbicide for a list of weeds controlled, directions for use and precautions.

- Apply prior to emergence of the 4th tiller (herbicide timing).

CANOLA SPRAY SCHEDULE

INSTRUCTIONS FOR USE:

BUMPER 418 EC will control blackleg and enhance yield potential during the early stages of canola growth. The disease may reappear later in the season, but with minimal effect on yield. DO NOT APPLY BY AIR.

DISEASE	RATE/HA	REMARKS/TIMING				
Blackleg	300 mL	Apply during the rosette stage; between 2 nd true leaf and bolting.				
		<table border="0"> <tr> <td>Seedling</td> <td>Rosette</td> <td>Bud (Bolted)</td> </tr> <tr> <td>Stage 1</td> <td>Stage 2</td> <td>Stage 3</td> </tr> </table>	Seedling	Rosette	Bud (Bolted)	Stage 1
Seedling	Rosette	Bud (Bolted)				
Stage 1	Stage 2	Stage 3				
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST.						

TANK-MIXING – SEED CORN, FIELD CORN and SWEET CORN

BUMPER 418 EC can be tank-mixed with the following partner:

Silencer 120 EC Insecticide

A restricted entry interval of 1 day is required for workers handharvesting and detasseling treated corn.

Tank-mixing Precautions:

- The tank mix of BUMPER 418 EC + Silencer 120 EC Insecticide can be applied by air and ground. Use 40 L of water per hectare when applying by air.
- Insects and crops must be at the correct stage as specified on the BUMPER 418 EC as well as the Silencer 120 EC label. Follow the directions for use and precautions on all labels.
- A Pre harvest interval (PHI) of 14 days must be respected when using these tank-mixes on field and sweet corn.
- Compatibility should always be confirmed by premixing small proportional quantities of water, BUMPER 418 EC, and the tank-mix partner in advance.

SEED CORN, FIELD CORN AND SWEET CORN SPRAY SCHEDULE

DISEASE	RATE/HA BUMPER 418 EC Fungicide alone	RATE/HA Tank Mix partner	REMARKS
Rusts	300 mL	+ 83 mL Silencer 120 EC	Apply 300 mL of BUMPER 418 EC per hectare when rust pustules first appear. Under severe disease pressure, make a second application 14 days after. Seed corn only , under severe disease pressure, make a third application 14 days after.
Northern Corn Leaf Blight Southern Corn Leaf Blight Helminthosporium Leaf Spot	150-300 mL	+ 83 mL Silencer 120 EC	Apply 150 - 300 mL of BUMPER 418 EC per hectare when disease first appears. Use the 150 mL rate if disease pressure is low.
Eye Spot Grey Leaf Spot	300 mL	+ 83 mL Silencer 120 EC	Apply 300 mL of BUMPER 418 EC per hectare when disease first appears.

SOYBEANS GROWN FOR SEED SPRAY SCHEDULE

DISEASE	RATE/HA	REMARKS
Frogeye Leaf Spot (<i>Cercospora spp.</i>) Aerial Web Blight (<i>Rhizoctonia solani</i>)	300-455 mL	Apply 300 - 455 mL of BUMPER 418 EC per hectare, using ground application equipment only, when disease first appears. Under severe disease pressure, make a second application 14 days after the first application.
Do not harvest soybeans within 50 days of the last application. Harvested soybean seed should not be used for human food or animal feed. For use only on soybeans grown for seed.		

CANARY SEED SPRAY SCHEDULE

DISEASE	RATE/HA	REMARKS
Septoria leaf mottle	300 mL	For the suppression of Septoria leaf mottle; make one application at emergence of flag leaf; ground application only; apply in 200 L water/ha.

DRY EDIBLE BEANS SPRAY SCHEDULE

DISEASE	RATE/HA	REMARKS
Rust	300 mL	Apply 300 mL of BUMPER 418 EC in minimum of 200 L of water per hectare by ground application or in 40 to 50 L of water per hectare by aerial application at the first detection of disease in the field and a second application 14 to 21 days later.
APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF BUMPER 418 EC TO DRY EDIBLE BEANS. DO NOT APPLY WITHIN 28 DAYS OF HARVEST.		

FRUIT AND SPECIALTY CROP USES:

Diseases Controlled:

Cranberries	Cottonball (<i>Monilinia oxycocci</i>)
Kentucky Bluegrass Grown for Seed	Powdery Mildew
Lowbush Blueberries	Monilinia Blight (Mummyberry)
Highbush Blueberries	Mummyberry (<i>Monilinia vaccinii – corymbosi</i>)
Peaches, Nectarines, Plums, Apricots	Brown Rot Blossom Blight, Fruit Brown Rot
Sweet and Sour Cherries	Brown Rot Blossom Blight, Fruit Brown Rot, Cherry Leaf Spot (<i>Blumeriella jaapii</i>)
Plums and Sour Cherries	Black Knot (<i>Apiosporina morbosa</i>) [suppression only]
Rutabagas	Powdery Mildew
Asparagus	Rust (<i>Puccinia asparagi</i>)
Saskatoon Berry	Entomosporium Leaf and Berry Spot, Saskatoon Juniper Rust
Western Red Cedar	Keithia Foliar Blight

Factors Affecting BUMPER 418 EC Performance: BUMPER 418 EC should be applied as a preventative disease control measure. Established diseases are more difficult to control and may have already reduced crop vigour.

If rainfall occurs within one hour of application, reapplication is necessary.

AERIAL APPLICATION

Apply only by fixed-wing or rotary aircraft equipment that has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precaution: Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial applications, as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty.

Operator Precautions: Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or faceshield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions: Read and understand the entire label before opening this product. If you have any questions, call the manufacturer at 1-212-661-9800 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this specific product must meet and/or conform to the following:

- Apply the recommended rate in a minimum spray volume of 40 litres per hectare.

- DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application.
- High humidity and low temperatures (10 – 20 ° C) allow for a better deposition of spray droplets.

SPRAYER AND APPLICATION INFORMATION

The performance of this product depends on correct application. Follow the guidelines given below for optimal application of BUMPER 418 EC.

	GROUND APPLICATION	AERIAL APPLICATION
Spray Volume	Minimum 200 litres of water per hectare	40 - 50 litres of water per hectare
Spray Pressure	200 - 300 kPa	100 - 200 kPa
Nozzle Type	110° Flat Fan (XR11004, 4110-20)	Flat Fan 6510-6515 or Hollow Cone (D8-45)
Droplet Size	Medium Spray (300 - 400 microns VMD)	Medium Spray (350 - 400 microns VMD)
Ground Speed	10 km/h	
Nozzle Angle	90° (straight down)	90° (straight down)
Boom Height	40-50 cm above the crop canopy	2-3 m above the crop canopy

Ground Application:

Mixing and Spraying Instructions

- Spray equipment should be thoroughly flushed with clean water before mixing BUMPER 418 EC.
- Fill spray tank 1/2 full with clean water. Engage gentle agitation.
- Add the required amount of BUMPER 418 EC and agitate thoroughly.
- Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tank-mix partner.
- Complete filling the spray tank with water, maintaining agitation during mixing and spraying operations.
- Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Aerial Application:

Mixing and Spraying Instructions

- Spray equipment should be thoroughly flushed with clean water before mixing BUMPER 418 EC.
- Fill premix tank 1/2 full with clean water. Engage gentle agitation.
- Add the required amount of BUMPER 418 EC and agitate thoroughly.
- Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tank-mix partner.
- Complete filling the premix tank with water.
- Maintain gentle agitation during mixing.
- Transfer the premix contents into the aircraft spray tank.
- Maintain sufficient agitation during the mixing and spraying operation to ensure BUMPER 418 EC remains in suspension.
- Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Fertilizer:

Mixing and Spraying Instructions

If desired, small amounts of nitrogen may be applied with BUMPER 418 EC. The appropriate amount of urea can be dissolved in water and added to the spray tank before adding BUMPER 418 EC. The rate of actual nitrogen must not exceed 10 kg/ha.

CAUTION: Excessive nitrogen concentrations may injure the crop.

NOTE: DO NOT add nitrogen when tank-mixing BUMPER 418 EC with an herbicide.

NOTE: Do not graze livestock on treated crop.

PEACHES, NECTARINES, PLUMS, AND APRICOTS - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Brown Rot Blossom Blight	300 mL	Apply 300 mL of BUMPER 418 EC in a minimum of 500 L of water per hectare by ground. Make 1st application at early bloom with a 2nd application at 50% - 75% bloom. If disease conditions persist, make a 3rd application at petal fall.
Fruit Brown Rot	300 mL	Apply no more than 2 applications in the 3 weeks prior to harvest. Apply 300 mL of product in a minimum of 500 L of

		water per hectare by ground.
Suppression of Black Knot (Plums only)	300 mL	Apply 300 mL of BUMPER 418 EC in a minimum of 500 L of water per hectare by ground. Make 1st application at early bloom with a 2nd application at 50% - 75% bloom. If disease conditions persist, make a 3rd application at petal fall.
DO NOT APPLY WITHIN 3 DAYS OF HARVEST. DO NOT REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION. IF REQUIRED, INDIVIDUALS MAY REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION FOR SHORT TERM TASKS WHICH DO NOT REQUIRE HAND LABOUR IF AT LEAST 4 HOURS HAVE PASSED SINCE APPLICATION AND PROVIDED LONG PANTS, LONG-SLEEVED SHIRTS, AND CHEMICAL-RESISTANT GLOVES ARE WORN.		

SWEET AND SOUR CHERRIES - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Brown Rot Blossom Blight	300 mL	Apply 300 mL of BUMPER 418 EC in a minimum of 500 L of water per hectare by ground. Make 1st application at early bloom with a 2nd application at 50% - 75% bloom. If disease conditions persist, make a 3rd application at petal fall.
Fruit Brown Rot	300 mL	Apply no more than 2 applications in the 3 weeks prior to harvest. Apply 300 mL of product in a minimum of 500 L of water per hectare by ground.
Cherry Leaf Spot (<i>Blumeriella jaapii</i>)	300 mL	Apply a maximum of 3 applications per season for control of Cherry Leaf Spot. Make the 1st application at petal fall. In the 3 weeks prior to harvest make a 2nd and 3rd application at a 7-10 day interval. Do not apply within 3 days of harvest. Apply 300 mL of product in a minimum of 500 L of water per hectare by ground.
Suppression of Black Knot (sour cherries only)	300 mL	Apply 300 mL of BUMPER 418 EC in a minimum of 500 L of water per hectare by ground. Make 1st application at early bloom with a 2nd application at 50% - 75% bloom. If disease conditions persist, make a 3rd application at petal fall.
It is recommended that no more than 2 consecutive applications of BUMPER 418 EC be made before switching to another fungicide with a different mode of action according to disease management practices.		
APPLY A MAXIMUM OF 5 APPLICATIONS PER SEASON OF BUMPER 418 EC TO SWEET AND SOUR CHERRIES. DO NOT APPLY WITHIN 3 DAYS OF HARVEST. DO NOT REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION. IF REQUIRED, INDIVIDUALS MAY REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION FOR SHORT TERM TASKS WHICH DO NOT REQUIRE HAND LABOUR IF AT LEAST 4 HOURS HAS PASSED SINCE APPLICATION AND PROVIDED LONG PANTS, LONG-SLEEVED SHIRTS, AND CHEMICAL-RESISTANT GLOVES ARE WORN.		

HIGHBUSH BLUEBERRY - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Mummyberry	300 mL	Apply 1 st application at or near flower bud swelling; make a

<i>(Monilinia vaccinii – corymbosi)</i>		2nd application at leaf bud swelling. Apply by ground only, making no more than two applications per year. In BC only, apply by ground, a 3 rd application at pink bloom and a 4 th application 7 to 10 days later at early bloom, making no more than 4 applications per year. Use a minimum of 200 L of water per hectare.
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST. A restricted entry interval of 5 days is required for workers hand pruning highbush blueberries.		

LOWBUSH BLUEBERRY - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Monilinia Blight	300 mL	Apply 1 st application when flower bud scales first appear and make a 2 nd application 10 days later. Use ground application or aerial application equipment, making no more than two applications per year. Use a minimum of 200 L of water per hectare if applying by ground equipment; use 40 – 50 L of water per hectare if applying by air.
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST.		

SASKATOON BERRY - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Entomosporium Leaf and Berry Spot, Saskatoon Juniper Rust	300 mL	As a foliar spray, apply up to three applications per season. The 1 st application to occur at “white tip”, the 2 nd application at “petal fall”, and the 3 rd application at “green fruit”. Apply 300 mL in a minimum of 200 L of water per hectare by ground, applying to runoff.
LAST APPLICATION MUST BE MADE AT LEAST 38 DAYS BEFORE HARVEST.		

CRANBERRY - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Cottonball (<i>Monilinia oxycocci</i>)	300 mL	Apply the 1 st application at leaf bud break. Make a 2 nd application 10 – 14 days later, a 3 rd application at early bloom and a 4 th application 10 – 14 days after the 3 rd application. Make no more than four applications per year. Apply product by ground.
LAST APPLICATION MUST BE MADE AT LEAST 45 DAYS BEFORE HARVEST.		

RUTABAGAS - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Powdery Mildew	240 mL	Make two applications per season with the 1 st application at 50 days after planting and the 2nd application 20 days later. Apply to vegetative foliage. Apply 240 mL in a minimum 200 L of water per hectare by ground.
LAST APPLICATION MUST BE MADE AT LEAST 21 DAYS BEFORE HARVEST.		

ASPARAGUS - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Rust (<i>Puccinia asparagi</i>)	150 mL	Apply BUMPER 418 EC to asparagus ferns in Ontario and Quebec only. Once harvest is complete, make the 1st application of BUMPER 418 EC as soon as fern growth begins, followed by applications at 14 to 21 day intervals. For new, non-harvested plantings, apply BUMPER 418 EC when first sign of rust is visible, followed by applications at 14 to 21 day intervals. Apply by ground only, making no more than three applications per year. Use a minimum of 370 L of water per hectare.
LAST APPLICATION MUST BE MADE AT LEAST 8 MONTHS BEFORE HARVEST.		

WESTERN RED CEDAR - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Keithia Foliar Blight	300 mL	Apply using ground application equipment every four weeks. Make a maximum of 6 applications per year. Apply 300 mL of BUMPER 418 EC in a volume of 1000 L of water per hectare by ground.

KENTUCKY BLUEGRASS FOR SEED PRODUCTION - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Powdery Mildew	300 mL	Apply as a foliar spray. Make no more than 2 applications per crop year with the 1st application at pre-heading and the 2nd at 50% - 100% heading. Apply in 200 - 300 L/ha of water by ground or 40 - 50 L/ha of water by air.

CANEBERRIES (CROP GROUP 13A; CULTIVARS AND/OR VARIETIES OF RED AND BLACK RASPBERRY, LOGAN BERRY AND BLACKBERRY) - SPRAY SCHEDULE		
DISEASE	RATE/HA	REMARKS
Yellow rust	300 mL	Apply 300 mL of BUMPER 418 EC in a minimum of 500 L of water per hectare by ground application at first detection of disease in the field and a second application 14 days later.
It is recommended that no more than 2 consecutive applications of BUMPER 418 EC be made before switching to another fungicide with a different mode of action according to disease management practices.		
APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF BUMPER 418 EC TO CANEBERRIES. DO NOT APPLY WITHIN 30 DAYS OF HARVEST. DO NOT REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION. IF REQUIRED, INDIVIDUALS MAY REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION FOR SHORT TERM TASKS WHICH DO NOT REQUIRE HAND LABOUR IF AT LEAST 4 HOURS HAS PASSED SINCE APPLICATION AND PROVIDED LONG PANTS, LONG SLEEVED SHIRTS, AND CHEMICAL RESISTANT GLOVES ARE WORN.		

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Adama Agricultural Solutions Canada Ltd. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Adama Agricultural Solutions Canada Ltd. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the User assumes all risks related to performance and crop tolerance arising, and agrees to hold Adama Agricultural Solutions Canada Ltd. harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

STRAWBERRIES – SPRAY SCHEDULE

DISEASE	RATE/HA	REMARKS
Leaf Spot (<i>Mycosphaerella fragariae</i>)	300 mL	Apply 300 mL of BUMPER 418 EC fungicide per hectare by ground in enough water to ensure thorough coverage. Make 1st application when disease levels are no more than 5%. Apply BUMPER 418 EC fungicide at 10 day intervals for control of leaf spot.
It is recommended that no more than 2 consecutive applications of BUMPER 418 EC be made before switching to another fungicide with a different mode of action according to disease management practices.		
APPLY A MAXIMUM OF 4 APPLICATIONS PER SEASON OF BUMPER 418 EC TO STRAWBERRIES. DO NOT APPLY WITHIN 1 DAY OF HARVEST.		

RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, BUMPER 418 EC contains a Group 3 fungicide. Any fungal population may contain individuals naturally resistant to BUMPER 418 EC and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of BUMPER 418 EC or other Group 3 fungicides with different groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group when such use is permitted.
- Avoid application of more than the maximum number listed in the label and consecutive sprays of BUMPER 418 EC or other fungicides in the same group in a season.
- Fungicide use should be based on an Integrated Pest Management program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological and other chemical control practices.
- Monitor treated fungal populations for sign of resistance development.

- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, if available.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and disease problems in your area.
- For further information or to report suspected resistance, contact Adama Agricultural Solutions Canada Ltd. at **1-855-264-6262**.

Estemine 2,4-D, & Estemine MCPA are registered trademarks of a Syngenta group company.
Ripcord is a registered trademark of BASF

1. IDENTIFICATION

Product name: **BUMPER 418 EC (PCP Reg. No. 28017)**
 Chemical name of active ingredient(s): Propiconazole: 1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]Methyl]-1H-1,2,4-triazole
 Registrant: ADAMA Agricultural Solutions Canada Ltd.
 302-179 McDermot Ave.
 Winnipeg, Manitoba, Canada
 Phone: 1-855-264-6262
 For fire, spill, and/or leak emergencies, contact Infotrac: Phone: 1-800-535-5053
 For medical emergencies and health and safety inquiries, contact Prosar: Phone: 1-877-250-9291

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMMON NAME	CAS NO.	%	OSHA PEL	ACIGH TLV	OTHER	NTP/IARC/OSHA (Carcinogen)
Propiconazole	60207-90-1	41.8	NA	NA	NA	NA
Aromatic solvent containing:	64742-94-5	33.2	NA	NA	NA	NA
Naphthalene	91-20-3	3.3*	50 mg/m ³ (TWA)	52 mg/m ³ (TWA)	NA	IARC-2B** NTP-2***
1,2,4-Trimethylbenzene	95-63-6	0.56*	125 mg/m ³ (TWA)	123 mg/m ³ (TWA)	NA	NA

NA=Not applicable

*Percentage of total amount.

**IARC-2B: The agent is possibly carcinogenic to humans. The exposure circumstance entails exposures that are possibly carcinogenic to humans.

***NTP-2: Substance, which may reasonably be anticipated to be a carcinogen.

3. HAZARDS IDENTIFICATION**PHYSICAL PROPERTIES:**

Appearance: Clear-brownish liquid

Odor: Aromatic

EMERGENCY OVERVIEW: WARNING. Eye and skin irritant. Potential skin sensitizer. Do not get in eyes, on skin or on clothing. Avoid breathing spray mist or vapors. Harmful or fatal if swallowed, inhaled or absorbed through the skin. Causes eye and skin irritation. This product may cause skin-sensitization reactions in certain individuals.

HAZARDOUS THERMAL (DE)COMPOSITION PRODUCTS: NO_x, CO, CO₂ and chlorides.

PRIMARY ROUTES OF EXPOSURE: Eye and skin contact.

SYMPTOMS OF ACUTE EXPOSURE: Skin redness and tears.

4. FIRST AID**FIRST AID:**

Contains petroleum distillates at greater than 10%.

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take the container label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

There is no specific antidote for this product. Apply symptomatic therapy. This product contains PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia.

5. FIRE FIGHTING MEASURES

FLASH POINT: 144° F (62°C)

EXTINGUISHING MEDIA: Water spray, fog or regular foam.

SPECIAL FIRE-FIGHTING PROCEDURES: Fight fire from a protected location. Dike fire control water for later disposal.

HAZARDOUS THERMAL (DE)COMPOSITION PRODUCTS: NO_x, CO, CO₂ and chlorides.

PROTECTION OF FIRE FIGHTERS: Wear suitable protective clothing. Self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS/LEAKS: Dispose of this material and its container at hazardous or special waste collection point, in accordance with national and regional regulations. If the product has contaminated surface water, inform the appropriate authorities. Contaminated soil layers have to be dug out. In the event of minor spillage: Absorb in sand or other inert material. Use appropriate containment to avoid environmental contamination. In the event of major spillage: Collect and contain as much free liquid as possible. Dike spills using absorbent or impervious materials such as sand or clay for later disposal.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING: Handle and open container in a manner as to prevent spillage. Do not get on skin or in eyes. Do not eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

PRECAUTIONS TO BE TAKEN IN STORAGE: To prevent contamination, store this product away from food or feed.

STORAGE TEMPERATURE (MIN/MAX): Normal ambient temperatures.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

EYE PROTECTION: Wear protective goggles or face shield when handling the concentrated product.

SKIN PROTECTION: Long-sleeved shirt, socks, chemical-resistant footwear and overalls when mixing, handling the product and during equipment cleanup and repairs.

HAND PROTECTION: Neoprene gloves.

RESPIRATOR REQUIREMENTS: In areas with inadequate ventilation a NIOSH-approved chemical cartridge respirator with organic vapor cartridges and pesticide pre-cartridges or a self-contained breathing apparatus may be required when working with this product.

ADDITIONAL PROTECTIVE MEASURES: After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separate from other laundry before reuse. Do not contaminate food or feed.

USER SAFETY RECOMMENDATIONS:

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

EXPOSURE GUIDELINES: Refer to Section 2.

ENGINEERING CONTROLS: Refer to product label.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear-brownish liquid

ODOR: Aromatic

FLASH POINT: 144° F (62°C)

pH: 6-8

DENSITY: 1.075 g/mL

VISCOSITY: 45 cps

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions.

CONDITIONS TO AVOID: Protect from sunlight, open flame and sources of heat. Decomposes upon heating.

MATERIALS TO AVOID: Avoid contact with: strong acids and strong bases.

HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: NO_x, CO, CO₂ and chlorides.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY/IRRITATION STUDIES:

Acute Oral LD50 (Rat):	972 mg/kg (female); >2,000 mg/kg (male)
Acute Dermal LD50 (Rat):	>5,000 mg/kg
Acute Inhalation LC50 (Rat):	>2.04 mg/L (4-hr)
Eye Irritation (Rabbit):	Moderately irritating.
Dermal Irritation (Rabbit):	Severely irritating.
Dermal Sensitization (Guinea Pig):	A skin sensitizer.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS: TOXIC to aquatic organisms. To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g., soils that are compacted or fine textured such as clay). Avoid application of this product when heavy rain is in the forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

13. DISPOSAL CONSIDERATIONS:

END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS.

PRODUCT DISPOSAL: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

CONTAINER DISPOSAL: Dispose of product containers, waste containers, and residues according to label instructions and provincial requirements.

14. TRANSPORT INFORMATION:

CANADIAN TDG CLASSIFICATION:

Not regulated for land shipments.

DOT CLASSIFICATION:

Not regulated

INTERNATIONAL TRANSPORTATION:

IMO (vessel): UN3082, Environmentally Hazardous Substance, Liquid, N.O.S. (Novaluron), 9, PGIII, Marine Pollutant

IATA (air): UN3082, Environmentally Hazardous Substance, Liquid, N.O.S. (Novaluron), 9, PGIII, Marine Pollutant

15. REGULATORY INFORMATION:

CANADIAN REGULATIONS:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the CPR.

DOMESTIC SUBSTANCES LIST:

Naphthalene
1,2,4-Trimethylbenzene

INGREDIENT DISCLOSURE LIST:

Naphthalene
1,2,4-Trimethylbenzene

U.S. FEDERAL REGULATIONS:

CERCLA RQ: Naphthalene RQ=100 lbs (Product= 3030 lbs/338 gals)

RCRA: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

SARA TITLE III CLASSIFICATION:

Section 302: Not applicable.
Section 311/312: Acute health hazard (immediate)
Delayed health hazard (chronic)
Section 313: Propiconazole CAS #: 60207-90-1 (41.8%)
Naphthalene CAS #: 91-20-3 (3.3%)
1,2,4-Trimethylbenzene CAS #: 95-63-6 (0.56%)

CA PRPO 65: This material contains a substance (naphthalene) known to the State of California to cause cancer.

RCRA CLASSIFICATION: Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

TSCA STATUS: The ingredients of this product are listed on the TSCA inventory or are exempt.

16. OTHER INFORMATION:

MSDS DATE: 6-5-15 Supersedes versions dated 6-7-12, 4-9-09 and 3-8-06. Changes made to Sections 1.

The information contained herein is given in good faith and is believed to be correct, but no warrant, express or implied, is made. Consult ADAMA Agricultural Solutions Canada Ltd.. for further information.

Container label

GROUP	3	FUNGICIDE
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BUMPER 432 EC

FUNGICIDE

COMMERCIAL

Emulsifiable Concentrate for
Broad-spectrum disease control in: Wheat, Barley, Oats, Canola,
Corn and Soybeans (grown for seed), Dry Edible Beans , Canary Seed, Peaches, Nectarines,
Plums, Apricots, Sweet Cherries, Sour Cherries, Highbush and Lowbush Blueberries,
Saskatoon Berries, Cranberries, Caneberries, Strawberries, Rutabagas, Asparagus, Western Red
Cedar, and Kentucky Bluegrass Grown for Seed.

GUARANTEE:

Propiconazole 432 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

REGISTRATION NO.: 28017
PEST CONTROL PRODUCTS ACT

CAUTION



POISON

EYE IRRITANT

Net Contents: 1-1050 litres

ADAMA Agricultural Solutions Canada, Ltd.
302 - 179 McDermot Ave
Winnipeg MB R3B 0S1
1 204 396-1640

24 Hour Emergency Response Number 1 800 535-5053

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID:

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take the container label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

There is no specific antidote for this product. Apply symptomatic therapy.

PRECAUTIONS:

KEEP OUT OF THE REACH OF CHILDREN. Harmful if swallowed. May irritate eyes. Avoid contact with eyes.

Wear long pants, a long sleeve shirt, chemical resistant footwear and socks, overalls and chemical-resistant gloves during mixing/loading, application, clean-up and repair activities. Wear protective goggles or faceshield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used.

Do not eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separately from other laundry before reuse. Do not contaminate food or feed.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas, is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

DO NOT enter or allow worker entry into treated areas during the restricted entry intervals (REIs) of:

- o 5 days for hand pruning highbush blueberries,
- o 1 day for hand harvesting and hand detasseling corn, and
- o 12 hours for the other re-entry activities and crops.

NOTE: Do not graze animals on treated green crops within three days of application of BUMPER 432 EC fungicide.

For fruit and specialty crops as listed, do not graze livestock on treated green crops.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes

STORAGE: To prevent contamination, store this product away from food or feed.

DISPOSAL:

DISPOSAL OF UNUSED, UNWANTED PRODUCT:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

CONTAINER DISPOSAL:

For recyclable containers:

DO NOT REUSE THIS CONTAINER FOR ANY PURPOSE. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For returnable containers:

DO NOT reuse this container for any other purpose. This empty container may be returned to the point of purchase (distributor/dealer) for disposal.

For information on disposal of unused, unwanted product, or in the case of a spill or spill clean-up, contact the manufacturer or provincial regulatory agency

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING CALL 1-800-535-5053.

ENVIRONMENTAL HAZARDS:

Toxic to aquatic organisms and non-target terrestrial plants. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland.

Pamphlet label

GROUP	3	FUNGICIDE
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BUMPER 432 EC

FUNGICIDE

COMMERCIAL

Emulsifiable Concentrate for
Broad-spectrum disease control in: Wheat, Barley, Oats, Canola,
Corn and Soybeans (grown for seed), Dry Edible Beans, Canary Seed, Peaches, Nectarines,
Plums, Apricots, Sweet Cherries, Sour Cherries, Highbush and Lowbush Blueberries,
Saskatoon Berries, Cranberries, Caneberries, Strawberries, Rutabagas, Asparagus, Western Red
Cedar, and Kentucky Bluegrass Grown for Seed.

GUARANTEE:

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TOXICOLOGICAL INFORMATION:

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PRECAUTIONS:

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Wear long pants, a long sleeve shirt, chemical resistant footwear, and socks overalls and chemical-resistant gloves during mixing/loading, application, clean-up and repair activities. Wear protective goggles or faceshield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used.

Do not eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separately from other laundry before reuse. Do not contaminate food or feed.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas, is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

DO NOT enter or allow worker entry into treated areas during the restricted entry intervals (REIs) of

- o 5 days for hand pruning highbush blueberries,
- o 1 day for hand harvesting and hand detasseling corn, and
- o 12 hours for the other re-entry activities and crops.

NOTE: Do not graze animals on treated green crops within three days of application of BUMPER 432 EC fungicide.

For fruit and specialty crops as listed, do not graze livestock on treated green crops.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes

STORAGE: To prevent contamination, store this product away from food or feed.

DISPOSAL:

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2. Make the empty rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For returnable containers:

DO NOT reuse this container for any other purpose. This empty container may be returned to the point of purchase (distributor/dealer) for disposal.

For information on disposal of unused, unwanted product, or in the case of a spill or spill clean-up, contact the manufacturer or provincial regulatory agency

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING CALL 1-800-535-5053.

ENVIRONMENTAL HAZARDS:

Toxic to aquatic organisms and non-target terrestrial plants. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland. DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Airblast application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 m/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotor span.

Buffer zones:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method Of Application	Crop		Buffer Zones (metres) Required for the Protection of:				Terrestrial habitat
			Freshwater Habitats of Depths:		Estuarine/Marine Habitats of Depths:		
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer*	Beans , soybeans, corn, wheat, oats, canary seed, canola, barley,		1	0	1	1	1
Aerial	beans, corn, oats, wheat, barley	Fixed Wing	1	0	3	1	20
		Rotary Wing	1	0	1	1	20
Field sprayer*	rutabagas, cranberries, asparagus, Kentucky bluegrass, Western red cedar		1	0	1	1	1
Airblast	Cherries	Early Growth Stage	5	0	10	3	10
		Late Growth Stage	2	0	4	2	4
	Blueberries, apricots, nectarines, peaches, plums, Saskatoon berries, ,	Early Growth Stage	4	0	5	2	5
		Late Growth Stage	2	0	3	1	3
Aerial	Blueberries, Kentucky bluegrass (seed prod.)	Fixed Wing	1	0	3	1	20
		Rotary Wing	1	0	3	1	20

For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

GENERAL INFORMATION:

Introduction: BUMPER 432 EC is a broad-spectrum systemic fungicide for control of a wide range of diseases on certain crops. BUMPER 432 EC fungicide will protect the crop from yield and quality losses due to disease. BUMPER 432 EC may be used in conjunction with higher seeding rates and higher fertilizer inputs. (See “NOTE” under PRECAUTIONS).

DIRECTIONS FOR USE:

DO NOT use in greenhouses.

BUMPER 432 EC may be applied to the crops listed in the table below to control or suppress the listed diseases.

Winter Wheat and Spring Wheat (including Hard Red, Durum, Canada Prairie, Soft White)	Septoria Leaf Spot (<i>Septoria tritici</i>); Glume Blotch (<i>Stagonospora nodorum</i>); Powdery Mildew (<i>Erysiphe graminis</i> f. sp. <i>tritici</i>); Leaf Rust (<i>Puccinia triticina</i>); Stem Rust (<i>Puccinia graminis</i>); Tan Spot (<i>Pyrenophora tritici-repentis</i>); Stripe Rust (<i>Puccinia striiformis</i>)
Spring Barley	Net Blotch (<i>Drechslera teres</i>); Spot Blotch (<i>Cochliobolus sativus</i>); Scald (<i>Rhynchosporium secalis</i>); Powdery Mildew (<i>Erysiphe graminis</i> DC. f. sp. <i>hordei</i>); Septoria Leaf Spot (<i>Septoria passerinii</i>); Leaf Rust (<i>Puccinia hordei</i>); Stem Rust (<i>Puccinia graminis</i>)
Oats	Septoria Leaf Blotch (<i>Septoria avenae</i>); Crown Rust (<i>Puccinia coronata</i>)
Canola	Blackleg (<i>Leptosphaeria maculans</i>)
Corn (including Field, Seed and Sweet)	Rusts (<i>Puccinia sorghi</i>); Northern Corn Leaf Blight (<i>Setosphaeria turcica</i>); Southern Corn Leaf Blight (<i>Cochliobolus heterostrophus</i>); Helminthosporium Leaf Spot (<i>Helminthosporium carbonum</i>); Eye Spot (<i>Aureobasidium zeae</i>); Grey Leaf Spot (<i>Cercospora zeae-maydis</i>)
Soybeans (grown for seed)	Frogeye Leaf Spot (<i>Cercospora spp.</i>); Aerial Web Blight (<i>Rhizoctonia solani</i>)
Canary Seed	Septoria Leaf Mottle (<i>Septoria triseti</i>)
Dry Edible Beans (including kidney, navy and white beans)	Rust (<i>Uromyces appendiculatus</i>)
Peaches, Nectarines, Plums, Apricots	Brown Rot Blossom Blight (<i>Monilinia fructicola</i>); Fruit Brown Rot (<i>Monilinia fructicola</i>)
Sweet and Sour Cherries	Brown Rot Blossom Blight (<i>Monilinia fructicola</i>); Fruit Brown Rot (<i>Monilinia fructicola</i>); Cherry Leaf Spot (<i>Blumeriella jaapii</i>)
Highbush Blueberries	Mummyberry (<i>Monilinia vaccinii – corymbosi</i>)
Lowbush Blueberries	Monilinia Blight (Mummyberry) (<i>Monilinia vaccinii – corymbosi</i>)

Saskatoon Berry	Entomosporium Leaf and Berry Spot (<i>Entomosporium mespilii</i>); Saskatoon Juniper Rust (<i>Entomosporium mespilii</i>)
Cranberries	Cottonball (<i>Monilinia oxycocci</i>)
Rutabagas	Powdery Mildew (<i>Erysiphe</i> spp.)
Asparagus	Rust (<i>Puccinia asparagi</i>)
Western Red Cedar	Keithia Foliar Blight (<i>Didymascella thujina</i>)
Kentucky Bluegrass Grown for Seed	Powdery Mildew (<i>Erysiphe graminis</i>)
Caneberries (Crop Group 13A)	Yellow rust (<i>Phragmidium rubi-idaei</i>)
Strawberries	Leaf Spot (<i>Mycosphaerella fragariae</i>)
Plums and Sour Cherries	Black Knot (<i>Apiosporina morbosa</i>) [suppression only]

Factors Affecting BUMPER 432 EC Performance: BUMPER 432 EC should be applied as a preventative disease control measure. Established diseases are more difficult to control and may have already reduced crop vigour.

If rainfall occurs within one hour of application, reapplication is necessary.

AERIAL APPLICATION:

DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. High humidity and low temperatures (10 – 20°C) allow for a better deposition of spray droplets.

SPRAYER AND APPLICATION INFORMATION:

The performance of this product depends on correct application. Follow the guidelines given below for optimal application of BUMPER 432 EC.

Sprayer Information:

	GROUND APPLICATION	AERIAL APPLICATION
Spray Volume	Minimum 200 L of water per hectare	50 L of water per hectare
Spray Pressure	200 - 300 kPa	100 - 200 kPa
Nozzle Type	110° Flat Fan (XR11004, 4110-20)	Flat Fan 6510-6515 or Hollow Cone (D8-45)
Droplet Size	Medium Spray (300 - 400 microns VMD)	Medium Spray (350 - 400 microns VMD)
Ground Speed	10 km/h	
Nozzle Angle	90° (straight down)	90° (straight down)
Boom Height	40-50 cm above the crop canopy	2-3 m above the crop canopy

Ground Application:

Mixing and Spraying Instructions:

- Spray equipment should be thoroughly flushed with clean water before mixing BUMPER 432 EC.

- Fill spray tank 1/2 full with clean water. Engage gentle agitation.
- Add the required amount of BUMPER 432 EC and agitate thoroughly.
- Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tank mix partner.
- Complete filling the spray tank with water, maintaining agitation during mixing and spraying operations.
- Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Aerial Application:

Mixing and Spraying Instructions:

- Spray equipment should be thoroughly flushed with clean water before mixing BUMPER 432 EC.
- Fill premix tank 1/2 full with clean water. Engage gentle agitation.
- Add the required amount of BUMPER 432 EC and agitate thoroughly.
- Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tank mix partner.
- Complete filling the premix tank with water.
- Maintain gentle agitation during mixing.
- Transfer the premix contents into the aircraft spray tank.
- Maintain sufficient agitation during the mixing and spraying operation to ensure BUMPER 432 EC remains in suspension.
- Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for a specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

AERIAL APPLICATION USE PRECAUTIONS:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Coarse sprays are less likely to drift; therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty.

AERIAL APPLICATION OPERATOR PRECAUTIONS:

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

PRODUCT SPECIFIC PRECAUTIONS:

Read and understand the entire label before opening this product. If you have questions call the manufacturer at 1-212-661-9800 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this specific product must meet and/or conform to the following:

Apply the recommended rate in a minimum spray volume of 50 litres per hectare.

Fertilizer:

Mixing and Spraying Instructions:

If desired, small amounts of nitrogen may be applied with BUMPER 432 EC. The appropriate amount of urea can be dissolved in water and added to the spray tank before adding BUMPER 432 EC. The rate of actual nitrogen must not exceed 10 kg/ha.

CAUTION: Excessive nitrogen concentrations may injure the crop.

NOTE: DO NOT add nitrogen when tank-mixing BUMPER 432 EC with a herbicide.

NOTE: Do not graze livestock on treated crops.

WHEAT, BARLEY AND OATS - INSTRUCTIONS FOR USE

Apply BUMPER 432 EC at the very early stages of disease. This could occur anytime during tillering or stem elongation. Typically, an application from the beginning of stem elongation up to flag leaf emergence is required.

BUMPER 432 EC lasts about three weeks in the plant. If conditions favourable to disease continue after this length of time, another application will be necessary to maintain control. The second spray is usually applied at the time of head emergence. In most cases, this second application is essential to maintain control of the Septoria disease complex.

CROP/DISEASE	RATE/HA	EARLY APPLICATION	LATER APPLICATION	MAXIMUM NUMBER OF APPLICATIONS PER SEASON
WHEAT Septoria Leaf Spot (<i>Septoria tritici</i>) and Tan Spot (<i>Pyrenophora tritici-repentis</i>) SPRING BARLEY Net Blotch (<i>Drechslera teres</i>)	150-300 mL	At Growth Stage (G.S). 12-23 (as early as the two leaf stage). For early season disease suppression, use the lower rate for suppression under normal field conditions. Use the higher rate for control if there is a history of high disease pressures in the field and/or field conditions favour disease development.	At the first sign of disease (G.S. 29-37) or before head is half emerged (G.S. 49-55). Apply only the high rate on any application from G.S. 29-55.	2 For net blotch on barley, in areas of high disease pressure, do not apply more than one (1) application of BUMPER 432 EC before alternating to a labelled fungicide with a different mode of action.
WHEAT Septoria Leaf Spot (<i>Septoria tritici</i>), Glume Blotch (<i>Stagonospora nodorum</i>), Powdery Mildew (<i>Erysiphe graminis</i> f. sp. <i>tritici</i>), Leaf Rust (<i>Puccinia triticina</i>), Stem Rust (<i>Puccinia</i>	300 mL	At the first sign of disease, usually at the beginning of stem elongation (G.S. 29-37)	Before head is half emerged (G.S. 49-55)	2 For powdery mildew, net blotch and scald: in areas of high disease pressure, do not apply more than one (1) application of

CROP/DISEASE	RATE/HA	EARLY APPLICATION	LATER APPLICATION	MAXIMUM NUMBER OF APPLICATIONS PER SEASON
<p><i>graminis</i>), Tan Spot (<i>Pyrenophora tritici-repentis</i>), Stripe Rust (<i>Puccinia striiformis</i>)</p> <p>SPRING BARLEY Net Blotch (<i>Drechslera teres</i>), Spot Blotch (<i>Cochliobolus sativus</i>), Scald (<i>Rhynchosporium secalis</i>), Powdery Mildew (<i>Erysiphe graminis</i> DC. f. sp. <i>hordei</i>), Septoria Leaf Spot (<i>Septoria passerinii</i>), Leaf Rust (<i>Puccinia hordei</i>), Stem Rust (<i>Puccinia graminis</i>)</p> <p>OATS Septoria Leaf Blotch (<i>Septoria avenae</i>), Crown Rust (<i>Puccinia coronata</i>)</p>				BUMPER 432 EC before alternating to a labelled fungicide with a different mode of action.
LAST APPLICATION MUST BE MADE AT LEAST 45 DAYS BEFORE HARVEST.				

HERBICIDE TANK-MIXING - WHEAT & BARLEY:

BUMPER 432 EC can be tank-mixed with ONLY ONE of these herbicides at a time:
See tank mix partner label for rate to use

- | | |
|---|------------------|
| 2,4-D Amine | Estemine 2,4-D® |
| MCPA Amine | Estemine MCPA® |
| Badge Emulsifiable Selective Weedkiller | Bromotril 240 EC |

Tank-mixing Precautions:

- Do not tank-mix BUMPER 432 EC with herbicides for application onto Oats.
- Weeds and crops must be at the correct stage of growth as specified in both the BUMPER 432 EC label and the tank mix partner label.
- 2,4-D and MCPA formulations may be applied either by ground application or aerial application; tank-mixtures of BUMPER 432 EC and Badge Emulsifiable Selective Weedkiller or Bromotril 240 EC can only be applied by ground application.
- Consult the label of the herbicide partner for a list of weeds controlled, directions for use and precautions.
- Compatibility should always be confirmed by premixing small proportional quantities of water, BUMPER 432 EC, and the tank-mix partner in advance.

NOTE: Do not graze animals on treated green crops within three days of application of BUMPER 432 EC. Do not feed straw from crops treated with herbicide tank mixes to livestock. For fruit and specialty crops as listed, do not graze livestock on treated green crops.

HERBICIDE TANK-MIXING – WHEAT

FOR USE ONLY IN THE PRAIRIE AND PEACE RIVER, OKANAGAN AND CRESTON FLATS REGIONS OF BRITISH COLUMBIA.

BUMPER 432 EC can be tank-mixed with LADDER 240 EC Herbicide for disease and grassy weed control.

Tank-mixing Precautions:

- Do not apply by air.
- Consult the label of LADDER 240 EC Herbicide for a list of weeds controlled, directions for use and precautions.
- Apply prior to emergence of the 4th tiller (herbicide timing).

CANOLA - INSTRUCTIONS FOR USE

BUMPER 432 EC will control blackleg and enhance yield potential during the early stages of canola growth. The disease may reappear later in the season, but with minimal effect on yield. **DO NOT APPLY BY AIR.**

DISEASE	RATE/HA	REMARKS/TIMING		
Blackleg (<i>Leptosphaeria maculans</i>)	300 mL	Apply during the rosette stage; between 2 nd true leaf and bolting.		
		Seedling Stage 1	Rosette Stage 2	Bud (Bolted) Stage 3
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST.				

SEED CORN, FIELD CORN and SWEET CORN – INSTRUCTIONS FOR USE

BUMPER 432 EC can be applied alone or tank-mixed with the following partner: Silencer 120 EC Insecticide

A restricted entry interval of 1 day is required for workers handharvesting and detasseling treated corn.

Tank-mixing Precautions:

- The tank mix of BUMPER 432 EC + Silencer 120 EC Insecticide can be applied by air and ground. Use 40 L of water per hectare when applying by air.
- Insects and crops must be at the correct stage as specified on the BUMPER 432 EC as well as the Silencer 120 EC label. Follow the directions for use and precautions on all labels.
- A Pre harvest interval (PHI) of 14 days must be respected when using these tank-mixes on field and sweet corn.
- Compatibility should always be confirmed by premixing small proportional quantities of water, BUMPER 432 EC, and the tank-mix partner in advance.

DISEASE	RATE/HA BUMPER 432 EC Fungicide alone	RATE/HA Tank Mix partner	REMARKS
Rusts (<i>Puccinia sorghi</i>)	300 mL	+ 83 mL Silencer 120 EC	Apply 300 mL of BUMPER 432 EC per hectare when rust pustules first appear. Under severe disease pressure, make a second application 14 days after. Seed corn only , under severe disease pressure, make a third application 14 days after.
Northern Corn Leaf Blight (<i>Setosphaeria turcica</i>),	150-300 mL	+ 83 mL Silencer 120 EC	Apply 150 - 300 mL of BUMPER 432 EC per hectare when disease first appears. Use the 150 mL rate if disease

DISEASE	RATE/HA BUMPER 432 EC Fungicide alone	RATE/HA Tank Mix partner	REMARKS
Southern Corn Leaf Blight (<i>Cochliobolus heterostrophus</i>), Helminthosporium Leaf Spot (<i>Helminthosporium carbonum</i>)			pressure is low.
Eye Spot (<i>Aureobasidium zeae</i>) Grey Leaf Spot (<i>Cercospora zeae-maydis</i>)	300 mL	+ 83 mL Silencer 120 EC	Apply 300 mL of BUMPER 432 EC per hectare when disease first appears.

SOYBEANS GROWN FOR SEED – INSTRUCTIONS FOR USE

DISEASE	RATE/HA	REMARKS
Frogeye Leaf Spot (<i>Cercospora spp.</i>) Aerial Web Blight (<i>Rhizoctonia solani</i>)	300-455 mL	Apply 300 - 455 mL of BUMPER 432 EC per hectare, using ground application equipment only, when disease first appears. Use the higher rate for control if there is a history of high disease pressures in the field and/or field conditions favour disease development. Under severe disease pressure, make a second application 14 days after the first application.
Do not harvest soybeans within 50 days of the last application. Harvested soybean seed should not be used for human food or animal feed. For use only on soybeans grown for seed.		

CANARY SEED - INSTRUCTIONS FOR USE

DISEASE	RATE/HA	REMARKS
Septoria leaf mottle (<i>Septoria triseti</i>)	300 mL	For the suppression of Septoria leaf mottle; make one application at emergence of flag leaf; ground application only; apply in 200 L water/ha.

DRY EDIBLE BEANS – INSTRUCTIONS FOR USE

DISEASE	RATE/HA	REMARKS
Rust (<i>Uromyces appendiculatus</i>)	300 mL	Apply 300 mL of BUMPER 432 EC in minimum of 200 L of water per hectare by ground application or in 50 L of water per hectare by aerial application at the first detection of disease in the field and a second application 14 to 21 days later.
APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF BUMPER 432 EC TO DRY EDIBLE BEANS. DO NOT APPLY WITHIN 28 DAYS OF HARVEST.		

PEACHES, NECTARINES, PLUMS, AND APRICOTS - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Brown Rot Blossom Blight (<i>Monilinia fructicola</i>)	300 mL	Apply 300 mL of BUMPER 432 EC in a minimum of 500 L of water per hectare by ground. Make 1st application at early bloom with a 2nd application at 50% - 75% bloom. If disease conditions persist, make a 3rd application at petal fall.
Fruit Brown Rot (<i>Monilinia fructicola</i>)	300 mL	Apply no more than 2 applications in the 3 weeks prior to harvest. Apply 300 mL of product in a minimum of 500 L of water per hectare by ground.
Suppression of Black Knot (Plums only) (<i>Apiosporina morbosa</i>)	300 mL	Apply 300 mL of BUMPER 432 EC in a minimum of 500 L of water per hectare by ground. Make 1st application at early bloom with a 2nd application at 50% - 75% bloom. If disease conditions persist, make a 3rd application at petal fall.
DO NOT APPLY WITHIN 3 DAYS OF HARVEST.		

SWEET AND SOUR CHERRIES - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Brown Rot Blossom Blight (<i>Monilinia fructicola</i>)	300 mL	Apply 300 mL of BUMPER 432 EC in a minimum of 500 L of water per hectare by ground. Make 1st application at early bloom with a 2nd application at 50% - 75% bloom. If disease conditions persist, make a 3rd application at petal fall.
Fruit Brown Rot (<i>Monilinia fructicola</i>)	300 mL	Apply no more than 2 applications in the 3 weeks prior to harvest. Apply 300 mL of product in a minimum of 500 L of water per hectare by ground.
Cherry Leaf Spot (<i>Blumeriella jaapii</i>)	300 mL	Apply a maximum of 3 applications per season for control of Cherry Leaf Spot. Make the 1st application at petal fall. In the 3 weeks prior to harvest make a 2nd and 3rd application at a 7-10 day interval. Do not apply within 3 days of harvest. Apply 300 mL of product in a minimum of 500 L of water per hectare by ground.

SWEET AND SOUR CHERRIES - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Suppression of Black Knot (sour cherries only) (<i>Apiosporina morbosa</i>)	300 mL	Apply 300 mL of BUMPER 432 EC in a minimum of 500 L of water per hectare by ground. Make 1st application at early bloom with a 2nd application at 50% - 75% bloom. If disease conditions persist, make a 3rd application at petal fall.
It is recommended that no more than 2 consecutive applications of BUMPER 432 EC be made before switching to another fungicide with a different mode of action according to disease management practices.		
APPLY A MAXIMUM OF 5 APPLICATIONS PER SEASON OF BUMPER 432 EC TO SWEET AND SOUR CHERRIES. DO NOT APPLY WITHIN 3 DAYS OF HARVEST.		

HIGHBUSH BLUEBERRY - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Mummyberry (<i>Monilinia vaccinii – corymbosi</i>)	300 mL	Apply 1 st application at or near flower bud swelling; make a 2nd application at leaf bud swelling. Apply by ground only, making no more than two applications per year. In BC only, apply by ground, a 3 rd application at pink bloom and a 4 th application 7 to 10 days later at early bloom, making no more than 4 applications per year. Use a minimum of 200 L of water per hectare.
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST. A restricted entry interval of 5 days is required for workers hand pruning highbush blueberries.		

LOWBUSH BLUEBERRY - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Monilinia Blight (<i>Monilinia vaccinii – corymbosi</i>)	300 mL	Apply 1 st application when flower bud scales first appear and make a 2 nd application 10 days later. Use ground application or aerial application equipment, making no more than two applications per year. Use a minimum of 200 L of water per hectare if applying by ground equipment; use 50 L of water per hectare if applying by air.
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST.		

SASKATOON BERRY - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Entomosporium Leaf and Berry Spot (<i>Entomosporium</i>)	300 mL	As a foliar spray, apply up to three applications per season. The 1 st application to occur at “white tip”, the 2 nd application at “petal fall”, and the 3 rd application at “green fruit”. Apply 300 mL in a minimum of 200 L of water per hectare by

<i>mespili</i>), Saskatoon Juniper Rust (<i>Entomosporium mespili</i>)		ground, applying to runoff.
LAST APPLICATION MUST BE MADE AT LEAST 38 DAYS BEFORE HARVEST.		

CRANBERRY - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Cottonball (<i>Monilinia oxycocci</i>)	300 mL	Apply the 1 st application at leaf bud break. Make a 2 nd application 10 – 14 days later, a 3 rd application at early bloom and a 4 th application 10 – 14 days after the 3 rd application. Make no more than four applications per year. Apply product by ground.
LAST APPLICATION MUST BE MADE AT LEAST 45 DAYS BEFORE HARVEST.		

RUTABAGAS - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Powdery Mildew (<i>Erysiphe</i> spp.)	240 mL	Make two applications per season with the 1 st application at 50 days after planting and the 2 nd application 20 days later. Apply to vegetative foliage. Apply 240 mL in a minimum 200 L of water per hectare by ground.
LAST APPLICATION MUST BE MADE AT LEAST 21 DAYS BEFORE HARVEST.		

ASPARAGUS - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Rust (<i>Puccinia asparagi</i>)	150 mL	Apply BUMPER 432 EC to asparagus ferns in Ontario and Quebec only. Once harvest is complete, make the 1 st application of BUMPER 432 EC as soon as fern growth begins, followed by applications at 14 to 21 day intervals. For new, non-harvested plantings, apply BUMPER 432 EC when first sign of rust is visible, followed by applications at 14 to 21 day intervals. Apply by ground only, making no more than three applications per year. Use a minimum of 370 L of water per hectare.
LAST APPLICATION MUST BE MADE AT LEAST 8 MONTHS BEFORE HARVEST.		

WESTERN RED CEDAR - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Keithia Foliar Blight	300 mL	Apply using ground application equipment every four weeks. Make a maximum of 6 applications per year. Apply 300 mL of

<i>(Didymascella thujina)</i>		BUMPER 432 EC in a volume of 1000 L of water per hectare by ground.
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KENTUCKY BLUEGRASS FOR SEED PRODUCTION - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Powdery Mildew <i>(Erysiphe graminis)</i>	300 mL	Apply as a foliar spray. Make no more than 2 applications per crop year with the 1st application at pre-heading and the 2nd at 50% - 100% heading. Apply in 200 - 300 L/ha of water by ground or 50 L/ha of water by air.

CANEBERRIES (CROP GROUP 13A; CULTIVARS AND/OR VARIETIES OF RED AND BLACK RASPBERRY, LOGAN BERRY AND BLACKBERRY) - INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Yellow rust <i>(Phragmidium rubi-idaei)</i>	300 mL	Apply 300 mL of BUMPER 432 EC in a minimum of 500 L of water per hectare by ground application at first detection of disease in the field and a second application 14 days later.
It is recommended that no more than 2 consecutive applications of BUMPER 432 EC be made before switching to another fungicide with a different mode of action according to disease management practices.		
APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF BUMPER 432 EC TO CANEBERRIES. DO NOT APPLY WITHIN 30 DAYS OF HARVEST.		

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:		
<p>The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Adama Agricultural Solutions Canada Ltd. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Adama Agricultural Solutions Canada Ltd. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.</p> <p>Accordingly, the User assumes all risks related to performance and crop tolerance arising, and agrees to hold Adama Agricultural Solutions Canada Ltd. harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.</p>		
STRAWBERRIES – INSTRUCTIONS FOR USE		
DISEASE	RATE/HA	REMARKS
Leaf Spot <i>(Mycosphaerella fragariae)</i>	300 mL	Apply 300 mL of BUMPER 432 EC fungicide per hectare by ground in enough water to ensure thorough coverage. Make 1st application when disease levels are no more than 5%. Apply BUMPER 432 EC fungicide at 10 day intervals for control of leaf spot.

It is recommended that no more than 2 consecutive applications of BUMPER 432 EC be made before switching to another fungicide with a different mode of action according to disease management practices.

APPLY A MAXIMUM OF 4 APPLICATIONS PER SEASON OF BUMPER 432 EC TO STRAWBERRIES. DO NOT APPLY WITHIN 1 DAY OF HARVEST.

RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, BUMPER 432 EC contains a Group 3 fungicide. Any fungal population may contain individuals naturally resistant to BUMPER 432 EC and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of BUMPER 432 EC or other Group 3 fungicides with different groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group that is effective on the target pathogen when such use is permitted.
- Avoid application of more than the maximum number listed in the label and consecutive sprays of BUMPER 432 EC or other fungicides in the same group in a season.
- Fungicide use should be based on an Integrated Pest Management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide applications.
- Monitor treated fungal populations for sign of resistance development. Notify Adama Agricultural Solutions Canada Ltd. if reduced sensitivity of the pathogen to BUMPER 432 EC is suspected.
- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, if available.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and disease problems in your area.

For further information or to report suspected resistance, contact ADAMA agricultural solutions Canada Inc.. at 1 204 396-1640.

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Safety Data Sheet

Revision Date: 10-Aug-2017

Version 2

1. IDENTIFICATION

Product Identifier

Product Name **Bumper 432 EC**

Other means of identification

SDS # ADAMA-229

Registration Number(s) Pest Control Product Reg. No. 28017
UN/ID No UN3082

Recommended use of the chemical and restrictions on use

Recommended Use Fungicide.

Details of the supplier of the safety data sheet

Manufacturer Address

ADAMA Agricultural Solutions Canada Ltd.
300 – 191 Lombard Avenue
Winnipeg, Manitoba R3B 0X1
1-855-264-6262

Emergency Telephone Number

Emergency Telephone (24 hr) For fire, spill and/or leak contact INFOTRAC:
1-800-535-5053 (North America) 1-352-323-3500 (International)
For medical emergencies and health/safety inquiries, contact ProPharma Group:
1-877-250-9291

2. HAZARDS IDENTIFICATION

This chemical is a product registered by the Canadian Pest Control Products Act and is subject to certain labeling requirements under federal law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-PCPA registered chemicals. Please see Section 15 for additional information. This product has been classified according to Canada's Hazardous Product Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

Appearance Clear, brownish liquid

Physical state Liquid

Odor Aromatic

Classification

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2B
Skin sensitization	Category 1

Signal Word

Warning

Hazard statements

May cause an allergic skin reaction
Causes skin irritation
Causes eye irritation



Precautionary Statements - Prevention

Avoid breathing dust/fume/gas/mist/vapors/spray
 Wear protective gloves/eye protection/face protection
 Wash face, hands and any exposed skin thoroughly after handling
 Contaminated work clothing must not be allowed out of the workplace

Precautionary Statements - Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention
 IF ON SKIN: Wash with plenty of water and soap
 If skin irritation or rash occurs: Get medical advice/attention
 Wash contaminated clothing before reuse

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other hazards

Very toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight-%
Propiconazole [1-[2-(2,4-Dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]-methyl-1H-1,2,4,-triazole]	60207-90-1	41.8

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First Aid Measures

General Advice	Take the container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.
Eye Contact	Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Skin Contact	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
Inhalation	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
Ingestion	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Most important symptoms and effects

Symptoms Skin redness and tears.

Indication of any immediate medical attention and special treatment needed

Notes to Physician There is no specific antidote for this product. Apply symptomatic therapy.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Water spray, fog or regular foam.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

Not determined.

Hazardous Combustion Products NOx, CO, CO2 and chlorides.

Protective equipment and precautions for firefighters

Wear suitable protective clothing. Self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Use personal protective equipment as required.

Environmental precautions

Environmental precautions If the product has contaminated surface water, inform the appropriate authorities. Contaminated soil layers have to be dug out. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up In the event of minor spillage: Absorb in sand or other inert material. Use appropriate containment to avoid environmental contamination. In the event of major spillage: Collect and contain as much free liquid as possible. Dike spills using absorbent or impervious materials such as sand or clay for later disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Keep out of the reach of children. Do not eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes. After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separately from laundry before use. Do not contaminate food or feed.

Conditions for safe storage, including any incompatibilities

Storage Conditions To prevent contamination, store this product away from food or feed.

Incompatible Materials Strong acids. Strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Appropriate engineering controls

Engineering Controls Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Wear protective goggles or face shield when handling the concentrated product.

Skin and Body Protection Long pants, long-sleeved shirt, socks, chemical-resistant footwear and overalls when mixing, handling the product and during equipment cleanup and repairs. The wearing of neoprene gloves by pilots when entering the aircraft is essential.

Respiratory Protection In areas with inadequate ventilation a NIOSH-approved chemical cartridge respirator with organic vapor cartridges and pesticide pre-cartridges or a self-contained breathing apparatus may be required when working with this product.

General Hygiene Considerations Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid	Odor	Aromatic
Appearance	Clear, brownish liquid	Odor Threshold	Not determined
Color	Brownish		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	4-5	
Melting Point/Freezing Point	Not determined	
Boiling Point/Boiling Range	Not determined	
Flash Point	110°C/230°F	
Evaporation Rate	Not determined	
Flammability (Solid, Gas)	Liquid-Not applicable	
Flammability Limits in Air		
Upper Flammability Limits	Not determined	
Lower Flammability Limit	Not determined	
Vapor Pressure	Not determined	
Vapor Density	Not determined	
Relative Density	Not determined	
Water Solubility	Not determined	
Solubility in other solvents	Not determined	
Partition Coefficient	Not determined	
Auto-ignition Temperature	Not determined	
Decomposition Temperature	Not determined	
Kinematic Viscosity	Not determined	
Dynamic Viscosity	94.3 mPa(s)	
Explosive Properties	Not determined	
Oxidizing Properties	Not determined	

Other Information

Density 1.062 g/mL

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous Polymerization

Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to Avoid

Protect from sunlight, open flame and sources of heat. Decomposes upon heating.

Incompatible Materials

Strong acids. Strong bases.

Hazardous Decomposition Products

NO_x, CO, CO₂ and chlorides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact Causes eye irritation.

Skin Contact Causes skin irritation.

Inhalation Harmful if inhaled.

Ingestion Harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Propiconazole [1-[2-(2,4-Dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]-methyl-1H-1,2,4-triazole] 60207-90-1	= 1517 mg/kg (Rat)	> 4 g/kg (Rat)	= 1264 mg/m ³ (Rat) 4 h

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization May cause an allergic skin reaction.

Carcinogenicity Based on the information provided, this product does not meet the definition of a carcinogen.

Numerical measures of toxicity**Acute Oral LD50 (Rat):** >2,000 mg/kg**Acute Dermal LD50 (Rabbit):** >5,000 mg/kg**Acute Inhalation LC50 (Rat):** >5 mg/L**Eye Irritation:** Irritating**Dermal Irritation:** Irritating**Dermal Sensitization:** A skin sensitizer**12. ECOLOGICAL INFORMATION****Ecotoxicity**

Very toxic to aquatic life with long lasting effects.

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Not determined

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS**Waste Treatment Methods****Disposal of Wastes**

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

Contaminated Packaging

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

14. TRANSPORT INFORMATION**DOT**

In containers of 119 gallons capacity or less this product is not regulated by DOT For containers greater than 119 gallons:

UN/ID No

UN3082

Proper Shipping Name

Environmentally hazardous substances, liquid, n.o.s. (Propiconazole)

Hazard Class

9

Packing Group

III

Marine Pollutant

Yes.

IATA**UN/ID No**

UN3082

Proper Shipping Name

Environmentally hazardous substances, liquid, n.o.s. (Propiconazole)

Hazard Class

9

Packing Group

III

Marine Pollutant

Yes

IMDG

UN/ID No	UN3082
Proper Shipping Name	Environmentally hazardous substances, liquid, n.o.s. (Propiconazole)
Hazard Class	9
Packing Group	III
Marine Pollutant	Yes

TDG

Section 1.45.1 of the TDG Regulations provides an exemption from documentation and safety marks only for this product and only when transported by a road or railway vehicle.

UN/ID No	UN3082
Proper Shipping Name	Environmentally hazardous substances, liquid, n.o.s. (Propiconazole)
Hazard Class	9
Packing Group	III
Marine Pollutant	Yes

15. REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	DSL/NDSL	EINECS/E LINCS	ENCS	IECSC	KECL	PICCS	AICS
Propiconazole [1-[2-(2,4-Dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]-methyl-1H-1,2,4,-triazole]	X		X	Present				X

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

US Federal Regulations**SARA 311/312 Hazard Categories**

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No.	Weight-%	SARA 313 - Threshold Values %
Propiconazole [1-[2-(2,4-Dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]-methyl-1H-1,2,4,-triazole] - 60207-90-1	60207-90-1	41.8	1.0

US State Regulations**U.S. State Right-to-Know Regulations**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Propiconazole [1-[2-(2,4-Dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]-methyl-1H-1,2,4,-triazole] 60207-90-1	X		

Pesticide Registration Number Pest Control Product Reg. No. 28017

Pest Control Product Statement

This chemical is a product registered by the Canadian Pest Control Products Act and is subject to certain labeling requirements under federal law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-PCPA registered chemicals.

Product Label

CAUTION
POISON
EYE IRRITANT

Difference between SDS and product label

	Product label	SDS
Signal Word	Caution	Warning
Acute toxicity - Oral	Harmful if swallowed	NA
Skin corrosion/irritation	NA	Causes skin irritation
Serious eye damage/eye irritation	Eye irritant	Causes eye irritation
Skin sensitization	NA	May cause an allergic skin reaction

16. OTHER INFORMATION

NFPA**Health Hazards**

Not determined

Flammability

Not determined

Instability

Not determined

Special Hazards

Not determined

HMIS**Health Hazards**

Not determined

Flammability

Not determined

Physical hazards

Not determined

Personal Protection

Not determined

Revision Date:

10-Aug-2017

Revision Note:

Updated address

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

GROUP	3	FUNGICIDE
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CARAMBA® Fungicide

LIQUID

Broad spectrum fungicide for use in cereals, corn, soybeans and sugar beets

COMMERCIAL (AGRICULTURAL)

GUARANTEE: Metconazole 90 g/L

REGISTRATION NO. 29767

PEST CONTROL PRODUCTS ACT

WARNING – EYE IRRITANT

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

KEEP OUT OF REACH OF CHILDREN

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT,
1-800-454-2673**

NET CONTENTS: 0.100 L – 1000 L, 8.1 L, 16.2 L

BASF Canada Inc.
100 Milverton Drive
5th Floor
Mississauga, Ontario
L5R 4H1
1-877-371-2273

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GENERAL INFORMATION

This package contains **CARAMBA Fungicide**, a 90 g/L emulsifiable concentrate. The active ingredient in **CARAMBA Fungicide** belongs to the triazole class of fungicides. The mode of action of metconazole is inhibition of ergosterol biosynthesis.

DIRECTIONS FOR USE (See specific sections for each crop group)

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Field sprayer application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Buffer zones

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				Terrestrial Habitat
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Wheat, barley, oats, rye, triticale, corn		1	1	0	0	0
	Soybeans		1	1	0	0	1
	Sugar beets		2	1	1	0	1
Aerial	Triticale	Fixed wing	10	1	0	0	0
		Rotary wing	10	1	0	0	0
	Wheat, barley, oats, rye, corn	Fixed wing	15	1	0	0	0
		Rotary wing	15	1	0	0	0
	Soybeans	Fixed wing	20	1	0	0	10
		Rotary wing	15	1	0	0	10
	Sugar beets	Fixed wing	50	1	1	0	15
		Rotary wing	40	1	1	0	15

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

Apply recommended rates of **CARAMBA Fungicide** as instructed by the following crop application rate tables. Apply **CARAMBA Fungicide** with ground or aerial spray equipment. Equipment should be checked frequently for proper calibration.

Cereals Application Rate Table (Ground and aerial application)

Crop	Disease	Application Rate (L/ha)
Barley	<p><u>For control of:</u> Net blotch (<i>Pyrenophora teres</i>) Scald (<i>Rhynchosporium secalis</i>) Leaf rust (<i>Puccinia hordei</i>) Stripe rust (<i>Puccinia striiformis</i>) Powdery mildew (<i>Erysiphe graminis</i>)</p> <p><u>For suppression of:</u> Spot blotch (<i>Cochliobolus sativus</i>)</p>	0.5 – 0.7
Wheat (all types) Triticale	<p><u>For control of:</u> Tan spot (<i>Pyrenophora tritici-repentis</i>) Septoria leaf spot (<i>Septoria tritici</i> or <i>S. nodorum</i>) Leaf rust (<i>Puccinia recondita</i>) Stripe rust (<i>Puccinia striiformis</i>) Stem rust (<i>Puccinia graminis</i>) Powdery mildew (<i>Erysiphe graminis</i> f. sp. <i>tritici</i>) Septoria glume blotch (<i>Stagonospora nodorum</i>)</p> <p><u>For suppression of:</u> Spot blotch (<i>Cochliobolus sativus</i>)</p>	
Oats	<p><u>For control of:</u> Crown rust (<i>Puccinia coronata</i>) Septoria leaf blotch (<i>Septoria avenae</i>)</p>	
Rye	<p><u>For control of:</u> Leaf rust (<i>Puccinia recondita</i>) Stripe rust (<i>Puccinia striiformis</i>) Powdery mildew (<i>Erysiphe graminis</i>)</p>	
Barley, oats, rye, wheat	<p>For suppression of Fusarium head blight (<i>Fusarium graminearum</i>)</p> <p>Application of CARAMBA Fungicide at the timing for Fusarium head blight will control or suppress leaf diseases (spot blotch, leaf rust) that occur later in the season.</p>	1.0

Crop	Disease	Application Rate (L/ha)
<p>Application Directions</p> <p>Control or Suppression of Leaf Diseases in Cereals For optimal disease control or suppression, apply CARAMBA Fungicide prior to disease development or at the onset of disease symptoms. Use 0.5 – 0.7 L/ha of CARAMBA Fungicide for control or suppression of leaf disease.</p> <p>Apply higher rate if weather conditions are conducive for disease development.</p> <p>Suppression of Fusarium Head Blight in Cereals The risk of fusarium head blight (FHB) in cereals is greater when the weather is warm and wet at head emergence and flowering. The application of CARAMBA Fungicide for suppression of FHB should be considered when these environmental conditions are forecasted.</p> <p>To maximize yield and suppress FHB, apply CARAMBA Fungicide at a rate of 1 L/ha to wheat, oats, and rye when crops are at 20% flowering (GS 61-63) using sprayer nozzles configured to provide excellent coverage of the cereal head. For barley, apply CARAMBA Fungicide at a rate of 1 L/ha between full head emergence to up to 3 days after full emergence of main stem heads. Application of CARAMBA Fungicide will reduce the Fusarium toxin (DON) in harvested grain. Application of CARAMBA Fungicide at the timing for FHB will control or suppress leaf diseases (crown rust, septoria leaf blotch) that occur later in the season. Application at this timing is not intended to provide curative control or suppression of established leaf diseases.</p> <p>DO NOT make more than one (1) application of CARAMBA Fungicide per season.</p>		

Corn Application Rate Table (Ground and aerial application)

Crop	Disease	Application Rate (L/ha)
<p><u>Corn</u> Field corn, pop corn, sweet corn, seed production corn</p>	<p>For suppression of fusarium and gibberella ear rots (<i>Fusarium graminearum</i> and <i>Gibberella zeae</i>)</p>	<p>1.0</p>
<p>Application Directions</p> <p>Suppression of Fusarium and Gibberella ear rots in Corn The risk of fusarium and gibberella ear rots in corn is greater when the weather is warm and wet during silking. The application of CARAMBA Fungicide for suppression of fusarium and gibberella ear rots should be considered when these environmental conditions are forecasted.</p> <p>To maximize yield and suppress fusarium and gibberella ear rots, apply CARAMBA Fungicide at a rate of 1 L/ha to corn when the crop is between silking (GS 63) and silk browning (GS 67). Application of CARAMBA Fungicide will reduce the fusarium toxin (DON) in harvested grain.</p> <p>DO NOT make more than one (1) application of CARAMBA Fungicide per season.</p> <p>Spray coverage: It is important to have good spray coverage on the silks to ensure optimum efficacy.</p>		

Soybeans Application Rate Table (Ground and aerial application)

Crop	Disease	Application Rate (L/ha)
Soybeans	For control of Asian soybean rust (<i>Phakopsora pachyrhizi</i>)	0.70
<p>Application Directions CARAMBA Fungicide can be applied from vegetative through full seed (R6 stage) soybeans. For optimal soybean rust control, make initial application of CARAMBA Fungicide between early flowering and pod set (R1 and R3 growth stage), or prior to rust development. If environmental conditions favor continued rust development or if monitoring shows active rust symptoms, repeat application 10-21 days after the first application. Use the shorter interval when rust pressure is high.</p> <p>DO NOT add an adjuvant or surfactant.</p> <p>ADVERSE EFFECTS: CARAMBA Fungicide can cause foliar chlorosis when applied to soybeans that are already highly stressed from drought, heat, and ground compaction.</p> <p>Management of Asian Soybean Rust If Asian soybean rust spores are present in the area, soybeans may be infected even if symptoms are not present. Once Asian soybean rust is established (infection level greater than 3-5%) on the soybean plant, control is difficult to achieve with a curative approach.</p> <p>Resistance Management To limit the potential for development of resistance, DO NOT make more than two (2) applications of CARAMBA Fungicide or other DMI (Group 3) fungicides per season.</p>		

Sugar Beet Application Rate Table (Ground and Aerial Application)

Crop	Disease	Application Rate (L/ha)
Sugar beets	For control of Cercospora leaf spot (<i>Cercospora beticola</i>)	1.0 – 1.25
<p>Application Directions Apply CARAMBA Fungicide at 1.0 – 1.25 L/ha prior to disease development or at the onset of disease to control cercospora leaf spot. Use the higher rate when disease pressure is high. If necessary, reapply on a 14-day schedule to a maximum of two (2) applications.</p> <p>Do not make more than two (2) applications of CARAMBA Fungicide before alternating to a fungicide with a different mode of action.</p>		

Ground Application

Apply **CARAMBA Fungicide** at rates listed in application rate and timing table (crop specific) when conditions are favourable for the development of disease. Use a minimum water volume of 100 L/ha. Ensure thorough coverage of foliage. Consult nozzle manufacturers recommendation for spray pressures for specific nozzles.

Aerial Application

Apply **CARAMBA Fungicide** at rates listed in the application rate and timing tables (crop specific) when conditions are favourable for the development of disease. Use a minimum water volume of 50 L/ha. Ensure thorough coverage of foliage. Consult nozzle manufacturers recommendation for spray pressures for specific nozzles.

Instructions for Aerial Applications

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-877-371-BASF (2273) or obtain technical advice from the distributor or your provincial agricultural representative.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, please note that **CARAMBA Fungicide** contains a Group 3 (metconazole) fungicide. Any fungal population may contain individuals naturally resistant to **CARAMBA Fungicide** and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of **CARAMBA Fungicide** or other Group 3 fungicides with different groups that control the same pathogens. Avoid application of more than 2 consecutive sprays of **CARAMBA Fungicide** or other fungicides in the same group.
- Use tank mixtures with fungicides from a different group when such use is permitted.
- **CARAMBA Fungicide** use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide applications.
- Monitor treated fungal populations for resistance development.
- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, if available.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.

For further information and to report suspected resistance, contact a BASF representative at 1 (877) 371- 2273 or at www.agsolutions.ca.

MIXING

1. Clean spray tank following sprayer clean-up recommendations on the label of the product applied previously.
2. Fill the spray tank one-half full of water and start agitation.
3. Add the required amount of **CARAMBA Fungicide** to the tank.
4. Continue agitation while filling the remainder of the spray tank .
5. After use, clean the spray tank.

RESTRICTIONS AND LIMITATIONS

1. Do not enter or allow worker entry into treated areas during the restricted entry intervals specified in the following table:

Crop	Activity	Restricted entry interval (REI)
Corn	Hand harvesting	18 days
	Hand set irrigation	3 days
	All other activities	12 hours
All other crops	All activities	12 hours

2. Crop preharvest interval and application limitation:

Crop	Application to harvest interval (days)	Maximum number of applications per year	Maximum number of sequential applications
Barley, oats, Rye, wheat	30	1	1
Sweet corn cobs	7 – for mechanical harvesting	1	1
	18 – for hand harvesting		
Field corn grain and popcorn grain	20	1	1
Soybeans	30	2	2
Sugar beets	14	2	2

3. All crops can be grazed or fed to livestock.

4. Rotational Crops: A plant back interval of 35 days is required for all crops not listed on the label.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. Harmful if swallowed. Do not take internally.
3. Causes eye irritation. DO NOT get in eyes.
4. Avoid contact with skin and clothing.
5. Wash thoroughly after handling and before eating, drinking or smoking.
6. All mixer/loaders and applicators: Wear long sleeved shirt, long pants, chemical resistant gloves, socks and footwear during mixing/loading, application, clean-up and repair. In addition, wear goggles/face shield during mixing/loading. Gloves are not required during application.

When handling more than 300 L of **CARAMBA Fungicide** per day, use closed mixing/loading systems.

Custom applicators must use a closed cab tractor for groundboom application. A closed cab is a chemical resistant barrier that completely surrounds the occupant of the cab and prevents contact with the pesticide or treated surfaces outside the cab.

7. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
8. Clean spray equipment thoroughly after use.
9. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia. Treat symptomatically.

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms, non-target terrestrial plants, and small wild mammals.

Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of **CARAMBA Fungicide** in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

STORAGE

1. Store in original tightly closed container. Protect from freezing.
2. Do not ship or store near food, feed, seed and fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.

DISPOSAL

For Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for any further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

For Non-Returnable Containers

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

For Returnable-Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

GROUP	3	FUNGICIDE
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CARAMBA® Fungicide

LIQUID

Broad spectrum fungicide for use in cereals, corn, soybeans and sugar beets

COMMERCIAL (AGRICULTURAL)

GUARANTEE: Metconazole 90 g/L

REGISTRATION NO. 29767

PEST CONTROL PRODUCTS ACT

WARNING – EYE IRRITANT

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

KEEP OUT OF REACH OF CHILDREN

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT,
1-800-454-2673**

NET CONTENTS: 0.100 L – 1000 L, 8.1 L, 16.2 L

BASF Canada Inc.
100 Milverton Drive
5th Floor
Mississauga, Ontario
L5R 4H1
1-877-371-2273

CARAMBA is a registered trade-mark of BASF Agro B.V., used with permission by BASF Canada Inc. ©2010 BASF Canada Inc.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. Harmful if swallowed. Do not take internally.
3. Causes eye irritation. DO NOT get in eyes.
4. Avoid contact with skin and clothing.
5. Wash thoroughly after handling and before eating, drinking or smoking.
6. All mixer/loaders and applicators: Wear long sleeved shirt, long pants, chemical resistant gloves, socks and footwear during mixing/loading, application, clean-up and repair. In addition, wear goggles/face shield during mixing/loading. Gloves are not required during application.

When handling more than 300 L of **CARAMBA Fungicide** per day, use closed mixing/loading systems.

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7. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
8. Clean spray equipment thoroughly after use.
9. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

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TOXIC to aquatic organisms, non-target terrestrial plants, and small wild mammals.

Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of **CARAMBA Fungicide** in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia. Treat symptomatically.

STORAGE

1. Store in original tightly closed container. Protect from freezing.
2. Do not ship or store near food, feed, seed and fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.

DISPOSAL

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2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

For Returnable-Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

Safety Data Sheet

CARAMBA FUNGICIDE.

Revision date : 2014/10/01
Version: 3.0

Page: 1/10
(30542462/SDS_CPA_CA/EN)

1. Product and Company Identification

Company

BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1
CANADA

24 Hour Emergency Response Information

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

PCP # 29767

Synonyms:

metconazole

2. Hazards Identification

Emergency overview

WARNING:

Eye irritant.

KEEP OUT OF REACH OF CHILDREN.

Harmful if swallowed.

Causes eye irritation.

Do not get in eyes, on skin, or on clothing.

Wash thoroughly after handling.

State of matter: liquid

Colour: off-white

Odour: characteristic

Potential health effects

Acute toxicity:

Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation.

Irritation / corrosion:

Causes substantial but temporary eye injury. May cause slight irritation to the skin.

Sensitization:

Skin sensitizing effects were not observed in animal studies.

Chronic toxicity:

Carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Safety Data Sheet

CARAMBA FUNGICIDE.

Revision date : 2014/10/01
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Repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Signs and symptoms of overexposure:

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

Potential environmental effects

Aquatic toxicity:

Acutely toxic for fish. Acutely toxic for aquatic invertebrates. Acutely toxic for aquatic plants. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Acutely toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Terrestrial toxicity:

With high probability not acutely harmful to terrestrial organisms.

Degradation / environmental fate:

The product has not been tested. The statement has been derived from the properties of the individual components.

Bioaccumulation / bioconcentration:

The product has not been tested. The statement has been derived from the properties of the individual components.

3. Composition / Information on Ingredients

Not WHMIS controlled.

4. First-Aid Measures

General advice:

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

Remove contaminated clothing.

If inhaled:

Remove the affected individual into fresh air and keep the person calm.

Keep patient calm, remove to fresh air, seek medical attention.

If on skin:

Rinse skin immediately with plenty of water for 15 - 20 minutes.

Wash thoroughly with soap and water.

If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

Safety Data Sheet

CARAMBA FUNGICIDE.

Revision date : 2014/10/01
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(30542462/SDS_CPA_CA/EN)

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting. Have person sip a glass of water if able to swallow.

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Note to physician

Antidote: No known specific antidote.
Treatment: Treat symptomatically.

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Flash point: > 113 °C (ASTM D93)
Autoignition: 340 °C

Lower explosion limit: As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.

Upper explosion limit: As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.

Flammability: not applicable

Suitable extinguishing media:

foam, dry powder, carbon dioxide, water spray

Hazards during fire-fighting:

carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Hydrogen chloride, halogenated hydrocarbons, Hydrocarbons,

The substances/groups of substances mentioned can be released in case of fire. If product is heated above decomposition temperature, toxic vapours will be released.

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

6. Accidental release measures

Personal precautions:

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

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Cleanup:

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labeled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations.

For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).

For large amounts: Dike spillage. Pump off product.

7. Handling and Storage

Handling

General advice:

Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment.

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:

The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

Storage

General advice:

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination.

Storage incompatibility:

General advice: Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

Storage stability:

Storage duration: 24 Months

Temperature tolerance

Protect from temperatures below: 2 °C

The product can crystallize below the limit temperature.

Protect from temperatures above: 30 °C

Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

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8. Exposure Controls and Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Components with occupational exposure limits

naphthalene	OSHA PEL	PEL 10 ppm 50 mg/m ³ ; STEL value 15 ppm 75 mg/m ³ ; TWA value 10 ppm 50 mg/m ³ ;
	ACGIH TLV	TWA value 10 ppm ; STEL value 15 ppm ; Skin Designation ; The substance can be absorbed through the skin.
naphthalene	OSHA PEL	PEL 10 ppm 50 mg/m ³ ; STEL value 15 ppm 75 mg/m ³ ; TWA value 10 ppm 50 mg/m ³ ;
	ACGIH TLV	TWA value 10 ppm ; STEL value 15 ppm ; Skin Designation ; The substance can be absorbed through the skin.

Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours.

Suitable respiratory protection for higher concentrations or long-term effect: Combination filter for gases/vapours of organic, inorganic, acid inorganic and alkaline compounds (e.g. EN 14387 Type ABEK).

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is recommended. The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid
Odour:	characteristic
Odour threshold:	No data available.
Colour:	off-white
pH value:	approx. 5.0 - 7.0 (1 %(m), 20 °C)
Melting point:	approx. -6.5 °C Information applies to the solvent.

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Boiling point:	approx. 244.9 °C	(1,013 hPa)	Information applies to the solvent.
Vapour pressure:	approx. 0.008 hPa	(25 °C)	Information applies to the solvent.
Density:	approx. 1.05 g/cm ³	(20 °C)	
Vapour density:			not applicable
Partitioning coefficient n-octanol/water (log Pow):			not applicable
Viscosity, dynamic:	30 mPa.s	(25 °C)	Information based on the main components.
Solubility in water:		(20 °C)	emulsifiable
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.		

10. Stability and Reactivity

Conditions to avoid:

Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures.

Substances to avoid:

strong oxidizing agents, strong bases, strong acids

Hazardous reactions:

The product is chemically stable.

Hazardous polymerization will not occur. No hazardous reactions if stored and handled as prescribed/indicated.

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

Possible thermal decomposition products:

carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Hydrogen chloride, halogenated hydrocarbons, Hydrocarbons

Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released.

Oxidizing properties:

not fire-propagating

11. Toxicological information

Acute toxicity

Oral:

Type of value: LD50

Species: rat (male)

Value: 3,536 mg/kg

Type of value: LD50

Species: rat (female)

Value: 2,102 mg/kg

Dermal:

Type of value: LD50

Species: rat (male/female)

Value: > 4,000 mg/kg

Irritation / corrosion

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Skin:

Species: rabbit
Result: non-irritant

Eye:

Species: rabbit
Result: Irritant.

Sensitization:

Buehler test
Species: guinea pig
Result: Skin sensitizing effects were not observed in animal studies.
Method: OECD Guideline 406

Repeated dose toxicity

Information on: Metconazole
Assessment of repeated dose toxicity:
Adaptive effects were observed after repeated exposure in animal studies.

Information on: diethylene glycol
Assessment of repeated dose toxicity:
The substance may cause damage to the kidney after repeated ingestion.
The substance may cause damage to the liver after repeated ingestion.

Information on: solvent naphtha
Assessment of repeated dose toxicity:
The substance may cause damage to the liver after repeated ingestion of high doses, as shown in animal studies.

Information on: naphthalene
Assessment of repeated dose toxicity:
Repeated oral uptake of the substance did not cause substance-related effects. The substance may cause damage to the olfactory epithelium after repeated inhalation. Repeated dermal uptake of the substance did not cause substance-related effects.

Genetic toxicity

Information on: Metconazole
Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic.

Carcinogenicity

Information on: Metconazole
In long-term studies in rodents exposed to high doses, a tumorigenic effect was found; however, these results are thought to be due to a rodent-specific liver effect that is not relevant to humans.

Reproductive toxicity

Information on: Metconazole
Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Development:

Information on: Metconazole
Indications of possible developmental toxicity/teratogenicity were seen in animal studies.

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Aspiration Hazard:

No aspiration hazard expected.

Other Information:

Misuse can be harmful to health.

12. Ecological Information

Fish

Acute:

Oncorhynchus mykiss/LC50 (96 h): 10 mg/l

Aquatic invertebrates

Acute:

Daphnia magna/EC50 (48 h): 9.28 mg/l

Aquatic plants

Toxicity to aquatic plants:

green algae/EC50 (72 h): > 6.91 mg/l

Not readily biodegradable (by OECD criteria).

Bioaccumulation

Information on: metconazole

sunfish, bluegill Bioconcentration factor 51 - 80

Does not accumulate in organisms.

Environmental mobility:

Information on: metconazole

Assessment transport between environmental compartments:

The substance will not evaporate into the atmosphere from the water surface.

Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.

Other adverse effects:

Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:

See product label for disposal and recycling instructions.

Container disposal:

Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

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14. Transport Information

Land transport

TDG

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Marine pollutant: YES
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(contains METCONAZOLE)

Air transport

IATA/ICAO

Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(contains METCONAZOLE)

15. Regulatory Information

Federal Regulations

Registration status:

Chemical DSL, CA released; restriction on quantity / not listed

Crop Protection DSL, CA released / exempt

WHMIS does not apply to this product.

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

16. Other Information

Recommended use: fungicide

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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SDS Prepared by:

BASF NA Product Regulations

BASF HOTLINE (800) 454 – COPE (2673)

SDS Prepared on: 2014/10/01

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

GROUP	4	INSECTICIDE
GROUP	4	12
		FUNGICIDES

CRUISER MAXX® BEANS

Seed Treatment

FUNGICIDES AND INSECTICIDE

SUSPENSION

AGRICULTURAL

A seed treatment product for the control of certain chewing and sucking insects and seed-borne and soil-borne diseases of soybeans, dry edible beans, edible-podded and succulent-shelled peas, and dry peas (including field peas).

ACTIVE INGREDIENTS:

Thiamethoxam	22.6%
Metalaxyl-M and S-isomer.....	1.70%
Fludioxonil.....	1.12%

Contains 1,2-benzisothiazolin-3-one at 0.01% as a preservative or contains 1,2-benzisothiazolin-3-one at 0.01%, 5-chloro-2-methyl-4-isothiazolin-3-one at 0.00056% and 2-methyl-4-isothiazolin-3-one at 0.00019% as preservatives.

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF THE REACH OF CHILDREN AND PREVENT ACCESS BY
UNAUTHORIZED PERSONNEL**

CAUTION – EYE AND SKIN IRRITANT

REGISTRATION NUMBER: **28821**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **1 L to 1050 L**

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

For use with commercial seed treaters (facilities and mobile treaters) with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment. No open transfer of CRUISER MAXX® BEANS Seed Treatment. All seed treated with this product must be conspicuously coloured at the time of treatment.

Label

1.0 NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

2.0 FIRST AID

IF POISONING IS SUSPECTED, IMMEDIATELY contact a physician or a poison control centre. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

3.0 TOXICOLOGICAL INFORMATION

NOTE TO PHYSICIAN: There is no specific antidote for this product if ingested. If ingested administer medicinal charcoal in a large quantity of water. Treat symptomatically.

4.0 PRECAUTIONS

1. KEEP OUT OF THE REACH OF CHILDREN AND ANIMALS. HARMFUL TO HUMANS AND DOMESTIC ANIMALS.
2. Harmful if swallowed, inhaled or absorbed through skin. DO NOT get in eyes. Avoid prolonged contact with skin. Avoid inhalation of vapours, spray mist or treated seed dust. Wash hands and face after handling and before eating, using tobacco (including smoking), applying cosmetics, or using the toilet.
3. Avoid contamination of feed and foodstuffs.
4. Do not apply in a way that this product will contact workers or other persons, either directly or through drift. Only handlers (mixers, loaders and applicators) wearing personal protective equipment may be in the area during application.
5. For use with commercial seed treaters (facilities and mobile treaters).

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Treat seed in a well-ventilated area. All workers (treater, cleaner, repair, maintenance, bagger, sewer, stacker, forklift operator and others) must wear: coveralls over long sleeve shirt, long pants and chemical-resistant gloves. For good hygiene practice, it is also recommended to wear a NIOSH/MSHA approved dust mask during all job activities. Wear a suitable dust mask when bagging or sewing bags of treated seed or when transferring seed to a storage bin.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. DO NOT reuse them. Wear freshly laundered clothes daily. DO NOT wear contaminated shoes. Wash clothing in detergent and hot water before reuse. Store and wash all protective clothing separately from household laundry.

6.0 ENVIRONMENTAL PRECAUTIONS

1. This product is TOXIC to fish and aquatic organisms. DO NOT apply this product directly to water, or to areas where surface water is present.
2. Thiamethoxam is toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. Dust generated during planting of treated seed may be harmful to bees and other pollinators.
3. To help minimize the dust generated during planting, refer to the "Pollinator Protection and Responsible Use of Treated Seed - Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators.
4. When using a seed flow lubricant with this treated seed, only a dust reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant.
5. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds.
6. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies.
7. Treated seed is TOXIC to birds and small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil or other surfaces.

7.0 USE RESTRICTIONS

1. Treated seed must not be used for food, feed or oil processing.
2. Store away from food and feed.
3. For seed treated with CRUISER MAXX BEANS Seed Treatment, do not graze or feed livestock on treated areas for 45 days after planting.
4. Do not plant any crop other than soybeans, dry beans, edible-podded and succulent-shelled peas, and dry peas (including field peas) within 45 days to fields in which treated seeds were planted.
5. All bags containing treated seed for sale or use in Canada must be labelled or tagged as

follows: **“This seed has been treated with thiamethoxam insecticide and metalaxyl-M (including S-isomer) and fludioxonil fungicides. Wear long-sleeve shirt, long pants, and chemical-resistant gloves when handling treated seed. Do not graze or feed livestock on seeded area for 45 days after planting. Do not use for food, feed or oil processing. Keep out of reach of children and animals. Store away from food and feed. Do not plant any crop other than soybeans, dry beans, chickpeas, lentils, edible-podded and succulent-shelled peas, and dry peas (including field peas) within 45 days to fields in which treated seeds were planted. This product is toxic to fish and other aquatic organisms. Treated seed is TOXIC to birds. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up from the soil surface.”**

6. Additionally, all treated soybean seed for sale or use in Canada must be labeled with the following information: **Thiamethoxam is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the “Pollinator Protection and Responsible Use of Treated Seed - Best Management Practices” on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators. When using a seed flow lubricant with this treated seed, only a dust reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.**

8.0 STORAGE

To prevent contamination, store this product away from food or feed.

9.0 DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

For Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with

provincial requirements.

For Returnable Containers

Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

For Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

CRUISER MAXX® is a trademark of a Syngenta Group Company.

GROUP	4	INSECTICIDE
GROUP	4 12	FUNGICIDES

CRUISER MAXX® BEANS

Seed Treatment

FUNGICIDES AND INSECTICIDE

SUSPENSION

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CAUTION – EYE AND SKIN IRRITANT

REGISTRATION NUMBER: **28821**
PEST CONTROL PRODUCTS ACT

Syngenta Canada Inc.

140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
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For use with commercial seed treaters (facilities and mobile treaters) with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment. No open transfer of CRUISER MAXX® BEANS Seed Treatment. All seed treated with this product must be conspicuously coloured at the time of treatment.

Pamphlet

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1.0 NOTICE TO USER

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If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Treat seed in a well-ventilated area. All workers (treater, cleaner, repair, maintenance, bagger, sewer, stacker, forklift operator and others) must wear: coveralls over long sleeve shirt, long pants and chemical-resistant gloves. For good hygiene practice, it is also recommended to wear a NIOSH/MSHA approved dust mask during all job activities. Wear a suitable dust mask when bagging or sewing bags of treated seed or when transferring seed to a storage bin.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. DO NOT reuse them. Wear freshly laundered clothes daily. DO NOT wear contaminated shoes. Wash clothing in detergent and hot water before reuse. Store and wash all protective clothing separately from household laundry.

6.0 ENVIRONMENTAL PRECAUTIONS

1. This product is TOXIC to fish and aquatic organisms. DO NOT apply this product directly to water, or to areas where surface water is present.
2. Thiamethoxam is toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. Dust generated during planting of treated seed may be harmful to bees and other pollinators.
3. To help minimize the dust generated during planting, refer to the "Pollinator Protection and Responsible Use of Treated Seed - Best Management Practices" on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators.
4. When using a seed flow lubricant with this treated seed, only a dust reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant.
5. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds.
6. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies.
7. Treated seed is TOXIC to birds and small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil or other surfaces.

7.0 USE RESTRICTIONS

1. Treated seed must not be used for food, feed or oil processing.
2. Store away from food and feed.
3. For seed treated with CRUISER MAXX BEANS Seed Treatment, do not graze or feed livestock on treated areas for 45 days after planting.
4. Do not plant any crop other than soybeans, dry beans, edible-podded and succulent-shelled peas, and dry peas (including field peas) within 45 days to fields in which treated seeds were planted.
5. All bags containing treated seed for sale or use in Canada must be labelled or tagged as

follows: **“This seed has been treated with thiamethoxam insecticide and metalaxyl-M (including S-isomer) and fludioxonil fungicides. Wear long-sleeve shirt, long pants, and chemical-resistant gloves when handling treated seed. Do not graze or feed livestock on seeded area for 45 days after planting. Do not use for food, feed or oil processing. Keep out of reach of children and animals. Store away from food and feed. Do not plant any crop other than soybeans, dry beans, chickpeas, lentils, edible-podded and succulent-shelled peas, and dry peas (including field peas) within 45 days to fields in which treated seeds were planted. This product is toxic to fish and other aquatic organisms. Treated seed is TOXIC to birds. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned up from the soil surface.”**

6. Additionally, all treated soybean seed for sale or use in Canada must be labeled with the following information: **Thiamethoxam is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the “Pollinator Protection and Responsible Use of Treated Seed - Best Management Practices” on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators. When using a seed flow lubricant with this treated seed, only a dust reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.**

8.0 STORAGE

To prevent contamination, store this product away from food or feed.

9.0 DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

For Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with

provincial requirements.

For Returnable Containers

Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

For Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

10.0 PRODUCT INFORMATION

CRUISER MAXX BEANS Seed Treatment is a seed treatment insecticide and fungicide for use on soybeans, dry beans, edible-podded and succulent-shelled peas, and dry peas (including field peas). CRUISER MAXX BEANS Seed Treatment controls wireworms and other listed chewing and sucking insects through contact and systemic activity of thiamethoxam, a compound belonging to the neonicotinoid class of chemistry. Fludioxonil and metalaxyl-M fungicides present in CRUISER MAXX BEANS Seed Treatment control certain seed- and soil-borne diseases of soybeans, dry edible beans, edible-podded and succulent-shelled peas, and dry peas (including field peas). Thorough seed coverage will offer the best protection of the seed from insect damage and disease. In addition, this formulation contains a colouring agent which will colour the treated seed.

Note: Treatment of highly mechanically scarred or damaged seed, or seed known to be of low vigour and poor quality, may result in reduced germination and/or reduction of seed and seedling vigour. Treat a small quantity of seed using equipment similar to that planned for treating the total seed lot. Conduct germination tests on a small portion of the seed before committing the total seed lot to a selected seed treatment. Due to seed quality and seed storage conditions beyond the control of Syngenta Canada Inc., no claims are made to guarantee the germination of carry-over treated seed.

Note: Experience has shown that strains of fungus resistant to metalaxyl-M may develop. Failure to control the disease will result in crop damage and/or yield losses. Since the occurrence of the resistance cannot be foreseen, Syngenta Canada Inc. accepts no responsibility for any loss of, or damage to, crops resulting from the failure of CRUISER MAXX BEANS Seed Treatment to control the resistant fungus strains. If disease appears in a treated field, consult the government extension specialist immediately.

11.0 DIRECTIONS FOR USE

11.1 General Information

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

FOR USE IN CLOSED APPLICATION SYSTEMS; NO OPEN TRANSFER OF PRODUCT IS PERMITTED.

11.2 Mixing Instructions (Slurry Application)

Ensure product is thoroughly mixed prior to application.

Apply CRUISER MAXX BEANS Seed Treatment utilizing closed system seed treatment equipment which provides uniform seed coverage. Uneven or incomplete seed coverage may not give the desired level of insect and (or) disease control. Thoroughly mix the recommended amount of CRUISER MAXX BEANS Seed Treatment into the required amount of seed treatment fungicide carrier for the slurry treater and dilution rate to be used. Follow the manufacturer's application instructions for the seed treatment equipment being used. Maintain constant agitation of the slurry during the seed treatment process. Allow the seed to dry before bagging or storing into bulk containers. Depending on planting equipment, seed treated with CRUISER MAXX BEANS Seed Treatment, or a combination of CRUISER MAXX BEANS Seed Treatment and seed inoculants, may not flow through planting equipment at the same rate as untreated seed. Recalibrate equipment before planting treated seed. **Mixing with inoculants may increase drying time while treating extends the processing time.**

11.3 Seed Treatment and Inoculants

CRUISER MAXX BEANS Seed Treatment is compatible with Rhizobium based inoculants. Please check with inoculant manufacturers for details prior to use.

Ideal storage temperature is above freezing and below 30 °C. Repeated freeze-thawing of CRUISER MAXX BEANS Seed Treatment will not affect the physical integrity of the product. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application.

This product contains a pigment, which will adequately colour the treated seed. However, users are responsible for ensuring that the treated seed, when dried and ready for bagging, has an unnatural colour. If the pigment contained in the formulation does not colour the seed adequately, additional colourant must be added to the mixture while treating the seed. Follow instructions on the colourant package for mixing. Regulations pertaining to colouration of treated seed enforced under the "Seed Act" must be strictly adhered to when using this product.

12.0 CROP USE DIRECTIONS

For control of the listed chewing and sucking pests, as well as seed-borne and soil-borne diseases of soybeans and dry edible beans, apply 195 mL of CRUISER MAXX BEANS Seed Treatment per 100 kg of seed to the crops listed.

Crop	Diseases Controlled	Insects Controlled
Soybeans¹	Control of seed rot/pre-emergence damping-off, and post-emergence damping-off caused by <i>Fusarium</i> spp., <i>Pythium</i> spp. and <i>Rhizoctonia</i> spp. Control of seedling blight caused by <i>Fusarium</i> spp. and <i>Pythium</i> spp. Control of seedling root rot caused by <i>Fusarium</i> spp. Seed Rot and Seedling Blight caused by seed-borne <i>Phomopsis</i> spp. Early season root rot caused by <i>Phytophthora megasperma</i> var. <i>sojae</i> . ²	Wireworm Seed Corn Maggot European Chafer Bean Leaf Beetle Soybean Aphid*
Dry Beans	Control of seed rot/pre-emergence damping-off, and post-emergence damping-off caused by <i>Fusarium</i> spp., <i>Pythium</i> spp. and <i>Rhizoctonia</i> spp. Control of seedling blight caused by <i>Pythium</i> spp. Anthracnose caused by seed-borne <i>Colletotrichum</i> spp.	Wireworm Seed Corn Maggot Potato Leafhopper**

* Early season protection.

** Replaces one (1) application of a foliar insecticide spray.

¹ Based on 6,600 soybean seeds per kg, CRUISER MAXX BEANS Seed Treatment delivers 85 µg of active ingredient (76 µg of thiamethoxam, 5.7 µg of metalaxyl-M and 3.8 µg of fludioxonil) per seed.

² CRUISER MAXX BEANS Seed Treatment provides early season protection against *Phytophthora* root rot for tolerant varieties of soybeans. If target fields have a history of high *Phytophthora* pressure, or susceptible varieties are to be treated, then tank-mix 195 mL of CRUISER MAXX BEANS Seed Treatment with 31 mL of APRON XL[®] LS Fungicide per 100 kg of seed.

13.0 MINOR USES

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Syngenta Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Syngenta Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Syngenta Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

Crops	Insect Controlled	Use Rate / 100 kg seed		Notes
		mL product	grams a.i.	
Peas (edible-podded, succulent-shelled and dry cultivars, including field peas)	Pea leaf weevil	117 – 195*	30 – 50	<p>At the high rate (195 mL), CRUISER MAXX BEANS Seed Treatment delivers 50 g of the active ingredient, thiamethoxam, 3.75 g of metalaxyl-M and 2.5 g of fludioxonil per 100 kg seed.</p> <p>At the low rate (117 mL), CRUISER MAXX BEANS Seed Treatment delivers 30 g of thiamethoxam and must be tank-mixed with 130 mL APRON MAXX® RTA® Seed Treatment or 40 mL APRON MAXX RFC (or MAXIM® 480FS Colourless Seed Treatment and APRON XL LS Fungicide) for equivalent disease protection as provided by the high rate of CRUISER MAXX BEANS Seed Treatment.</p> <p>Follow all appropriate directions, precautions, etc. as specified on product labels.</p>

* Use the higher rate when insect populations are expected to be high.

14.0 RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that CRUISER MAXX BEANS Seed Treatment contains both a Group 4 and Group 12 fungicides and a Group 4 insecticide. Any fungal and (or) insect population may contain individuals naturally resistant to CRUISER MAXX BEANS Seed Treatment and other Group 4 or Group 12 fungicides and Group 4 insecticides. A gradual or total loss of pest control may occur over time if these fungicides/insecticides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay insecticide and fungicide resistance:

Where possible, rotate the use of CRUISER MAXX BEANS Seed Treatment or other Group 4 and Group 12 fungicides and Group 4 insecticides with different groups that control the same pathogens/pests.

Fungicide and insecticide use should be based on an Integrated Pest Management (IPM) program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological and other chemical control practices.

Monitor treated fungal and insecticide populations for resistance development. If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide and insecticide product with a different target site of action, if available.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and (or) IPM recommendations for specific crops and pathogens or pest problems in your area.

For further information or to report suspected resistance, contact Syngenta Canada Inc. at 1-877-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

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Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3

**In Case of Emergency, Call
1-800-327-8633 (FAST MED)**

Date of MSDS Preparation (Y/M/D): 2017-12-31

Supersedes date (Y/M/D): 2014-12-31

MSDS prepared by:
Department of Regulatory & Biological Assessment
Syngenta Canada Inc.

For further information contact:
1-87-SYNGENTA (1-877-964-3682)

SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: CRUISER MAXX® BEANS Seed Treatment Product No.: A14379B
Registration Number: 28821 (Pest Control Products Act)
Chemical Classes: A blend of a neonicotinoid insecticide with phenylamide and substituted benzodioxalcarbonitrile fungicides

Active Ingredient (%): Thiamethoxam (22.6%) CAS No.: 153719-23-4
Chemical Name: 3-[(2-chloro-5-thiazolyl)methyl]tetrahydro-5-methyl-*N*-nitro-4*H*-1,3,5-oxadiazin-4-imine
Chemical Class: Neonicotinoid Insecticide

Active Ingredient (%): Metalaxyl-M (and S isomer) (1.70 %) CAS No.: 70630-17-0
{Metalaxyl-M is the active isomer of metalaxyl.}
Chemical Name: methyl *N*-(2,6-dimethylphenyl)-*N*-(methoxyacetyl)-D-alaninate
Chemical Class: Phenylamide Fungicide

Active Ingredient (%): Fludioxonil (1.12%) CAS No.: 131341-86-1
Chemical Name: 4-(2,2-difluoro-1,3-benzodioxol-4-yl)-1*H*-pyrrole-3-carbonitrile.
Chemical Class: Substituted Benzodioxalcarbonitrile Fungicide

Product Use: CRUISER MAXX BEANS is liquid seed treatment used to control various diseases and insects in registered crops. For further details please refer to product label.

SECTION – 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Glycerin (CAS No. 56-81-5)	15 mg/m ³ TWA (total); 5 mg/m ³ TWA (respirable)	10 mg/m ³ TWA (total)	Not Established	No	Not Established
Thiamethoxam (29.9%)	Not Established	Not Established	3 mg/m ³ TWA***	No	Not Established
Metalaxyl-M (and S isomer) (1.7%)	Not Established	Not Established	10 mg/m ³ TWA***	No	Not Established
Fludioxonil (1.12 %)	Not Established	Not Established	10 mg/m ³ TWA***	No	Not Established

*** Syngenta Occupational Exposure Limit (OEL)

† Material listed in Ingredient Disclosure List under Hazardous Products Act.

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
Syngenta Hazard Category: B

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

May cause eye and skin irritation.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Opaque blue liquid.

Odour: Odourless.

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Potential Health Effects

Relevant routes of exposure: Skin, eyes, mouth, lungs.

SECTION – 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Material Safety Data Sheet with you when calling Syngenta, a poison control center or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [**1-800-327-8633 (1-800-FASTMED)**], for further information.

EYE CONTACT: Flush eyes with clean water, holding eyelids apart for a minimum of 15 - 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta, a poison control center or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

SKIN CONTACT: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with running water for a minimum of 20 minutes. Obtain medical attention if irritation occurs.

INHALATION: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

INGESTION: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control center. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

NOTES TO PHYSICIAN:

There is no specific antidote. Treat symptomatically.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED: None known.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: > 101 °C.

Upper and lower flammable (explosive) limits in air: Not available.

Auto-ignition temperature: Not available.

Flammability: Not flammable.

Hazardous combustion products: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Conditions under which flammability could occur: Product is not flammable. Keep fire exposed containers cool by spraying with water.

Extinguishing media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist, (avoid use of water jet). Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

Sensitivity to explosion by mechanical impact: No.

Sensitivity to explosion by static discharge: No.

SECTION – 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices. A small spill can be handled routinely. Wear suitable protective equipment and clothing as described in Section 8 and/or the product label.

Procedures for dealing with release or spill: Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or sweep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.

SECTION – 7: HANDLING AND STORAGE

Handling practices: KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours or spray mist. Wear appropriate protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Keep product, wash or rinse water, and contaminated materials out of water, and away from access by animals, birds or unauthorized people.

Appropriate storage practices/requirements: Store above 0°C in the original container. Store in a dry, well ventilated area away from feed and foodstuffs, and out of the reach of children and animals. Keep away from fire or open flame, or other sources of heat. Keep separate from other products to prevent cross contamination. Rotate stock.

National Fire Code classification: Not applicable.

SECTION – 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Applicable control measures, including engineering controls: This product is intended for use outdoors where engineering controls are not necessary. If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV. Warehouses, production area, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS.

Personal protective equipment for each exposure route:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

INGESTION: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

EYES: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

SKIN: Where contact is likely, wear chemical-resistant gloves (such as nitrile or butyl), coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

INHALATION: A respirator is not normally required when handling this substance. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P, R or HE class filter and an organic vapour cartridge may be used under certain circumstances where airborne concentrations are expected to exceed exposure limits (e.g. emergency spills).

SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Opaque blue liquid.

Formulation Type: Flowable suspension.

Odour: Odourless.

pH: 6.5 (1% aqueous dispersion @ 25 °C).

Vapour pressure and reference temperature: 2.9 x 10⁻⁹ mmHg @ 25 °C (Fludioxonil Technical).
 2.5 x 10⁻⁵ mmHg @ 25 °C (Metalaxyl-M Technical).
 2 x 10⁻¹¹ mmHg @ 20 °C (Thiamethoxam Technical).

Vapour density: Not available.

Boiling point: Not available.

Melting point: Not available.

Freezing point: -5°C

Specific gravity or density: 1.15 g/cm³ @ 20 °C.

Evaporation Rate: Not available.

Water/oil partition coefficient: Not available.

Odour threshold: Not available.

Viscosity: 570 mPas (or cps) @ 20°C

Solubility in Water: 1.8 mg/L @ 25 °C (Fludioxonil Technical).
 26 g/L @ 25 °C (Metalaxyl-M Technical).
 4.1 g/L @ 25 °C (Thiamethoxam Technical).

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable under normal use and storage conditions.

Conditions to avoid: None known.

Incompatibility with other materials: None known.

Hazardous decomposition products: Can decompose at high temperatures and form toxic gases.

Hazardous polymerization: Will not occur.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Low Acute Toxicity</u>	
	Oral (LD50 Female Rat):	5,000 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u>	
	Dermal (LD50 Rabbit):	> 5,000 mg/kg body weight
Inhalation:	<u>Low Acute Toxicity</u>	
	Inhalation (LC50 Rat):	> 2.5 mg/L air - 4 hours
Eye Contact:	<u>Minimally Irritating (Rabbit)</u>	

Skin Contact: Slightly Irritating (Rabbit)

Skin Sensitization: Not a Sensitizer (Guinea Pig)

Reproductive/Developmental Effects

Fludioxonil Technical: Not teratogenic.
Metalaxyl-M Technical: None observed.
Thiamethoxam Technical: Not teratogenic or a reproductive toxicant. Minor testis effects at high doses with no effect on reproduction.

Chronic/Subchronic Toxicity Studies

Fludioxonil Technical: Liver and kidney effects at high dose levels in animal models. Changes in urine colour (predominantly blue) occurred following repeated dosing in dogs, rats and mice.
Metalaxyl-M Technical: Liver effects at high dose levels in animal models.
Thiamethoxam Technical: Liver and kidney effects at high doses in animal models. Not neurotoxic in animal models.

Carcinogenicity

Fludioxonil Technical: No evidence of carcinogenicity in rodent studies.
Metalaxyl-M Technical: No evidence of carcinogenicity in rodent studies.
Thiamethoxam Technical: Liver tumors, at high doses in mice, that are not relevant to humans.

Other Toxicity Information:

None.

Toxicity of Other Components

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

Glycerin:

Repeated or prolonged exposure to concentrated solutions may result in dermatitis.

Other materials that show synergistic toxic effects together with the product: None known.

Target Organs

Active Ingredients

Fludioxonil Technical: Liver, kidney.
Metalaxyl-M Technical: Liver.
Thiamethoxam Technical: Liver, kidney.

Inert Ingredients

Glycerin: Skin.

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects

The insecticidal active ingredient, thiamethoxam, is slightly to practically non-toxic to fish, birds and aquatic invertebrates (water flea). The fungicide, metalaxyl-M (and S isomer), is practically non-toxic to slightly toxic to fish, birds, aquatic invertebrates (water flea). Fludioxonil is practically non-toxic to birds, but is moderately to very highly toxic to fish (rainbow trout) and aquatic invertebrates (water flea).

Eco-Acute Toxicity

Fludioxonil Technical:

Green Algae 5-Day EC ₅₀	0.83 ppm
Invertebrates (Water Flea) 48-hour EC ₅₀	0.90 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	0.23 ppm
Bird (Bobwhite Quail) 8-day Dietary LC ₅₀	> 5,200 mg/kg

Metalaxyl-M Technical:

Green Algae 5-Day EC ₅₀	140 ppm
Invertebrates (Water Flea) 48-hour /EC ₅₀	28 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	130 ppm
Bird (Bobwhite Quail) 5-day Dietary LD ₅₀	> 5,000 ppm

Thiamethoxam Technical:

Green Algae 5-Day EC ₅₀	> 100 ppm
Invertebrate (Water Flea) 48-hour EC ₅₀	> 106 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	> 100 ppm
Bird (Bobwhite Quail) 8-day Dietary LC ₅₀	> 5,200 ppm

Environmental Fate

The active ingredient, thiamethoxam, has a moderate bioaccumulation potential, low mobility, and moderate persistence in soil and water. Fludioxonil, has a low bioaccumulation potential, low mobility in soil, and has low persistence in soil or water. The active ingredient metalaxyl-M (and S isomer) has a low bioaccumulation potential, a low to high mobility in soil (depending on soil type), and is not persistent in the environment.

SECTION – 13: DISPOSAL CONSIDERATIONS

Waste disposal information: Do not reuse empty containers unless they are specifically designed to be re-filled. Empty container retains product residue. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents must accompany the shipment.

SECTION – 14 : TRANSPORT INFORMATION

Shipping information such as shipping classification:

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION - ROAD/RAIL
Not Regulated

SECTION – 15: REGULATORY INFORMATION

WHMIS classification for product: Exempt

A statement that the MSDS has been prepared to meet WHMIS requirements, except for use of the 16 headings.

This MSDS has been prepared in accordance with WHMIS requirements, but the data are presented under 16 headings.

Other regulations; restrictions and prohibitions

Pest Control Products (PCP) Act Registration No.: 28821

SECTION – 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant MSDS. Hazardous properties of all ingredients have been considered in the preparation of this MSDS. Read the entire MSDS for the complete hazard evaluation of this product.

Prepared by: Syngenta Canada Inc.
1-87-SYNGENTA (1-877-964-3682)

Syngenta Canada Inc. believes that the information and recommendations contained herein (including data and statements) are accurate as of the date thereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and of the information referred to herein are beyond the control of Syngenta Canada Inc., Syngenta Canada Inc. expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.

CRUISER MAXX® is a trademark of a Syngenta Group Company.

CRUISERMAXX® VIBRANCE CEREALS

Date: 2/13/2015
Replaces: 8/7/2013

1. PRODUCT IDENTIFICATION

Product identifier on label: **CRUISERMAXX® VIBRANCE CEREALS**

Product No.: A17511B
Use: Insecticide with Fungicides
Manufacturer: Syngenta Crop Protection, LLC
Post Office Box 18300
Greensboro NC 27419
Manufacturer Phone: 1-800-334-9481

Emergency Phone: 1-800-888-8372

2. HAZARDS IDENTIFICATION

Classifications: Eye Damage/Irritation: Category 2B
Signal Word (OSHA): Warning
Hazard Statements: Causes eye irritation

Hazard Symbols:

Precautionary Statements: Wash hands and face thoroughly after handling.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice.

Other Hazard Statements: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Common Name	CAS Number	Concentration
Glycerin	Glycerin	56-81-5	Trade Secret
Other ingredients	Other ingredients	Trade Secret	92.3%
1H-1,2,4-Triazole, 1-[[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl]methyl]-	Difenoconazole	119446-68-3	3.34%
(R,S)-2-[(2,6-dimethylphenyl)-methoxyacetylamino]-propionic acid methyl ester	Mefenoxam	70630-17-0 & 69516-34-3	0.86%

CRUISERMAXX® VIBRANCE CEREALS

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3-(2-chloro-1,3-thiazol-5-ylmethyl)-5-methyl-1,3,5-oxadiazinan-4-ylidene(nitro)amine	Thiamethoxam	153719-23-4	2.78%
1H-Pyrazole-4-carboxamide, N-(2-[1,1'-bicyclopropyl]-2-ylphenyl)-3-(difluoromethyl)-1-methyl-	Sedaxane	874967-67-6	0.72%

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

Have the product container, label or Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

- Ingestion:** If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- Eye Contact:** If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact:** If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation:** If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Most important symptoms/effects:

Eye irritation

Indication of immediate medical attention and special treatment needed:

There is no specific antidote if this product is ingested.

Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

Use dry chemical, foam or CO2 extinguishing media. If water is used to fight fire, dike and collect runoff.

Specific Hazards:

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Special protective equipment and precautions for firefighters:

Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:

Follow exposure controls/personal protection outlined in Section 8.

Methods and materials for containment and cleaning up:

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g.

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commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Precautions for safe handling:

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Conditions for safe storage, including any incompatibilities:

Not Applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Occupational Exposure Limits:

Chemical Name	OSHA PEL	ACGIH TLV	Other	Source
Glycerin	15 mg/m ³ TWA (total); 5 mg/m ³ TWA (respirable)	Not Established	Not Established	Not Applicable
Other ingredients	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Difenoconazole	Not Established	Not Established	5 mg/m ³ TWA	Syngenta
Mefenoxam	Not Established	Not Established	5 mg/m ³ TWA	Syngenta
Thiamethoxam	Not Established	Not Established	3 mg/m ³ TWA	Syngenta
Sedaxane	Not Established	Not Established	2 mg/m ³ TWA	Syngenta

Appropriate engineering controls:

Use effective engineering controls to comply with occupational exposure limits (if applicable).

Individual protection measures:

Ingestion:

Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact:

Where eye contact is likely, use chemical splash goggles.

Skin Contact:

Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear.

Inhalation:

A respirator is not normally required when handling this substance. Use effective engineering control s to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

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Date: 2/13/2015

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Bright red liquid

Odor: Faint paint

Odor Threshold: Not Available

pH: 5.2 - 6.5 (as packaged)

Melting point/freezing point: Not Available

Initial boiling point and boiling range: Not Available

Flash Point (Test Method): Not Available

Flammable Limits (% in Air): Not Available

Flammability: Not Available

Vapor Pressure: Difenoconazole 2.5 x 10⁽⁻¹⁰⁾ mmHg @ 77°F (25°C)Mefenoxam 2.5 x 10⁽⁻⁵⁾ mmHg @ 77°F (25°C)Sedaxane 4.9 x 10⁽⁻¹⁰⁾ mmHg @ 68°F (20°C)Thiamethoxam 2 x 10⁽⁻¹¹⁾ mmHg @ 68°F (20°C)

Vapor Density: Not Available

Relative Density: 1.107 g/ml ; 9.21 lbs/gal

Solubility (ies): Difenoconazole 15 mg/l @ 77°F (25°C)

Mefenoxam 26 g/l @ 77°F (25°C)

Sedaxane 14 mg/l @ 77°F (25°C)

Thiamethoxam 4.1 g/l @ 77°F (25°C)

Partition coefficient: n-octanol/water: Not Available

Autoignition Temperature: Not Available

Decomposition Temperature: Not Available

Viscosity: Not Available

Other: None

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical stability: Stable under normal use and storage conditions.

Possibility of hazardous reactions: Will not occur.

Conditions to Avoid: Not Available

Incompatible materials: None known.

Hazardous Decomposition Products: Not Available

11. TOXICOLOGICAL INFORMATIONHealth effects information

Likely routes of exposure: Dermal, Inhalation

Symptoms of exposure: Eye irritation

CRUISERMAXX® VIBRANCE CEREALS

Date: 2/13/2015
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Delayed, immediate and chronic effects of exposure: Eye irritation

Numerical measures of toxicity (acute toxicity/irritation studies (finished product))

Ingestion: Oral (LD50 Rat) : > 5000 mg/kg body weight
 Dermal: Dermal (LD50 Rat) : > 5050 mg/kg body weight
 Inhalation: Inhalation (LC50 Rat) : > 2.59 mg/l air - 4 hours
 Eye Contact: Minimally Irritating (Rabbit)
 Skin Contact: Non-Irritating (Rabbit)
 Skin Sensitization: Not a Sensitizer (Guinea Pig)

Reproductive/Developmental Effects

Difenoconazole: None observed.
 Mefenoxam: None observed.
 Sedaxane: Did not show teratogenic effects in animal experiments.
 Did not show reproductive toxicity effects in animal experiments.
 Thiamethoxam: Developmental: Not teratogenic in rats or rabbits.
 Reproductive: No effects on reproduction. Minor increase in a common testis effect in rats at high doses, which did not affect reproduction.

Chronic/Subchronic Toxicity Studies

Difenoconazole: Kidney and liver effects at high doses (>5000 ppm; rats); Eye effects in dogs at high dose levels.
 Mefenoxam: Liver effects at high dose animal tests.
 Sedaxane: STOT - Repeated Exposure : No adverse effect has been observed in chronic toxicity tests.
 Thiamethoxam: Subchronic: Liver effects occurred in rodents only at high dose levels. Not neurotoxic after high acute and subchronic exposure in rats.

Carcinogenicity

Difenoconazole: Did not show carcinogenic effects in animal experiments.
 Mefenoxam: None observed.
 Sedaxane: Did not show mutagenic effects in animal experiments.
 At extremely high doses, numerically higher incidences of uterine, thyroid and liver tumors (male and/or female rats) and liver tumors (male mice) were within the range of normal background variation and thus considered unrelated to treatment. Some Regulatory Authorities have taken a more conservative position that these high-dose findings are treatment-related in rats and mice. The dose levels where these findings occur are not relevant to human exposure levels.
 Thiamethoxam: Classified as "not likely to be carcinogenic in humans" based on lifetime studies in mice and rats.

Chemical Name	NTP/IARC/OSHA Carcinogen
Glycerin	No
Other ingredients	No
1H-1,2,4-Triazole, 1-[[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl]methyl]-	No
(R,S)-2-[(2,6-dimethylphenyl)-methoxyacetylamino]-propionic acid methyl ester	No

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3-(2-chloro-1,3-thiazol-5-ylmethyl)-5-methyl-1,3,5-oxadiazinan-4-ylidene(nitro)amine No

1H-Pyrazole-4-carboxamide, N-(2-[1,1'-bicyclopropyl]-2-ylphenyl)-3-(difluoromethyl)-1-methyl- No

Other Toxicity Information

None

Toxicity of Other Components

Glycerin

Repeated or prolonged exposure to concentrated solutions may result in dermatitis.

Other ingredients

Not Applicable

Target Organs

Active Ingredients

Difenoconazole: Brain, liver, kidney, gastrointestinal tract

Mefenoxam: Liver

Sedaxane: Not Applicable

Thiamethoxam: Liver

Inert Ingredients

Glycerin: Skin

Other ingredients: Not Applicable

12. ECOLOGICAL INFORMATION

Eco-Acute Toxicity

Difenoconazole:

Fish (Rainbow Trout) 96-hour LC50 1.1 mg/l

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 0.77 mg/l

Green Algae 72-hour EbC50 0.032 mg/l

Mefenoxam:

Fish (Rainbow Trout) 96-hour LC50 > 121 ppm

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 > 113 ppm

Bird (Bobwhite Quail) 14-day LD50 981 mg/kg

Thiamethoxam:

Fish (Rainbow Trout) 96-hour LC50 > 100 ppm

Bird (Mallard Duck) LD50 Oral 576 mg/kg

Invertebrate (Daphnia Magna) 48-hour EC50 > 106 ppm

Green Algae 4-day EC50 > 97 ppm

Sedaxane:

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 6.10 mg/l

Green Algae 96-hour EbC50 1.9 mg/l

Fish (Carp) 96-hour LC50 0.62 mg/l

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Environmental Fate

Difenoconazole:

The information presented here is for the active ingredient, difenoconazole.
Stable in soil and water. Low to moderate mobility in soil. Sinks in water (after 24 h).

Mefenoxam:

The information presented here is for the active ingredient, mefenoxam.
Does not bioaccumulate. Not persistent in soil or water. Moderate mobility in soil. Mixes/sinks (after 24 h).

Sedaxane:

The information presented here is for the active ingredient, sedaxane.
Material is not readily biodegradable. Material is not persistent in soil.

Thiamethoxam:

The information presented here is for the active ingredient, thiamethoxam.
Not persistent in soil. Stable in water. Moderate mobility in soil. Floats in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal:

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA
Not regulated

Comments

Water Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Thiamethoxam, Difenoconazole), Marine Pollutant
Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III

Air Transport

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Thiamethoxam, Difenoconazole)
Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III

15. REGULATORY INFORMATION

Pesticide Registration:

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Caution: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

CRUISERMAXX® VIBRANCE CEREALS

Date: 2/13/2015
 Replaces: 8/7/2013

EPA Registration Number(s):
 100-1383

EPCRA SARA Title III Classification:
 Section 311/312 Hazard Classes: Acute Health Hazard
 Section 313 Toxic Chemicals: None

CERCLA/SARA 304 Reportable Quantity (RQ):
 None
 RCRA Hazardous Waste Classification (40 CFR 261):
 Not Applicable
 TSCA Status:
 Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 2
 Flammability: 1
 Instability: 0

HMIS Hazard Ratings

Health: 2
 Flammability: 1
 Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme
*	Chronic

Syngenta Hazard Category: B,S

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 3/23/2012
 Revision Date: 2/13/2015 Replaces: 8/7/2013
 Section(s) Revised: 1-16

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.



CRUISER MAXX[®] VIBRANCE[®] BEANS is a combination of separately registered products comprised of [CRUISER MAXX BEANS](#) and [VIBRANCE 500FS](#).

Click on the name of each product for their respective label.

CRUISER MAXX[®], VIBRANCE[®] and the Syngenta wordmark are trademarks of a Syngenta Group Company.

GROUP 4A INSECTICIDE

GROUP 3 4 7 FUNGICIDES

PULL HERE TO OPEN ►



CruiserMaxx[®] Vibrance[®]
Cereals



syngenta[®]

Insecticide with Fungicides

A seed treatment product for protection against damage from certain insects and diseases of cereals.

Active Ingredient:

Sedaxane (CAS No. 874967-67-6)	0.72%
Difenoconazole (CAS No. 119446-68-3)	3.34%
Mefenoxam (CAS Nos. 70630-17-0 and 69516-34-3)	0.86%
Thiamethoxam (CAS No. 153719-23-4)	2.78%

Other Ingredients: 92.30%

Total: 100.00%

CruiserMaxx Vibrance Cereals is a flowable concentrate for seed treatment containing 0.067 pounds of sedaxane, 0.31 pounds of difenoconazole, 0.079 pounds of mefenoxam, and 0.26 pounds of thiamethoxam per gallon

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-1383

EPA Est. 100-NE-001

SCP 1383A-L1B 0816

4071742

2.5 gallons
Net Contents

®

FIRST AID	
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first five minutes, then continuing rinsing. • Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything to an unconscious person.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
HOT LINE NUMBER For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical resistant gloves: barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, polyvinyl chloride (PVC) ≥14 mils, Viton® ≥14 mils
- Protective eyewear: faceshield, goggles, or safety glasses
- Shoes plus socks

User Safety Requirements

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

continued...

PRECAUTIONARY STATEMENTS (*continued*)

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

This product is toxic to fish, shrimp and wildlife and highly toxic to aquatic invertebrates. If treated seed is spilled outdoors or in areas accessible to birds, promptly clean up or bury to prevent ingestion. Do not contaminate water when disposing of equipment wash water or rinsate.

Pollinator Precautions

Thiamethoxam is highly toxic to bees, and effects may be possible as a result of exposure to translocated residues in blooming crops.

Groundwater Advisory

Mefenoxam is known to leach through soil into groundwater under certain conditions as a result of label use. Thiamethoxam has properties and characteristics associated with chemicals detected in groundwater. These chemicals may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, LLC or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and (2) Buyer and User assume the risk of any such use. TO THE EXTENT PERMITTED BY APPLICABLE LAW SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Use is permitted on-farm and in commercial seed treatment facilities. Do not use for at-plant applications (e.g. hopper box, planter box, etc.). This product is to be applied as a water-based slurry through standard slurry- or mist-type commercial seed treatment equipment.

Maximum usage when applying both metalaxyl- and mefenoxam-containing products to the same crop within the same season: Do not apply more than the maximum seasonal total for metalaxyl or mefenoxam as stated on the product label which allows for the lowest total amount of metalaxyl and mefenoxam on that crop per season.

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR INSECT AND/OR DISEASE CONTROL, AND/OR ILLEGAL RESIDUES.

Treatment of highly mechanically scarred or damaged seed or seed known to be of low vigor and poor quality may result in reduced germination and/or reduction of seed and seedling vigor. Treat a quantity of seed using equipment similar to that planned for treating the total seed lot. Prior to treatment, conduct germination tests on a portion of seed before committing the total seed lot to a selected seed treatment.

Due to seed quality, crop or variety sensitivity, and seed storage conditions beyond the control of Syngenta, no claims are made to guarantee the germination of seed or propagating material for all crop seed when treated with CruiserMaxx Vibrance Cereals.

PRODUCT INFORMATION

CruiserMaxx Vibrance Cereals is a seed treatment product containing the active ingredients: thiamethoxam (insecticide) and sedaxane, difenoconazole and mefenoxam (fungicides). CruiserMaxx Vibrance Cereals seed treatment protects against damage from wireworm and European chafer early season insects and also protects against certain seed-borne, soil-borne, and early season foliar diseases of cereal crops.

Thiamethoxam protects against certain chewing and sucking insects through contact and ingestion.

Sedaxane enhances the protections against *Ustilago* spp. and *Rhizoctonia* spp. Difenoconazole provides protection against several seed and seedling diseases of cereals. Mefenoxam provides protection against damping-off caused by *Pythium* spp.

RESISTANCE MANAGEMENT

GROUP	4A	INSECTICIDE
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CruiserMaxx Vibrance Cereals contains thiamethoxam, a Group 4A insecticide. Thiamethoxam is a systemic insecticide belonging to the neonicotinoid class of chemistry which includes nicotinic acetylcholine receptor (nAChR) agonists. Insect populations may contain individuals naturally resistant to Group 4A insecticides and if used repeatedly in the same fields, then resistant members may eventually dominate the population. Because resistance development cannot be predicted, use sound resistance management strategies established for the crop and use area.

Base seed treatment on an integrated pest management program that includes field sanitation, historical information related to pesticide use, careful selection of pest-tolerant crop varieties, scouting, and management practices which optimize populations of natural enemies of insect pests such as within-field refugia (untreated areas). Sound management programs also consider cultural and biological control practices.

In order to maintain susceptibility to this class of chemistry:

- Use products at their full, recommended doses.
- Use appropriate, well-maintained equipment. Use recommended water volumes and apply at optimal temperatures in order to obtain optimal treatment.
- When rate ranges are given, use the higher rate within the listed rate range when insect pressure is expected to be high.
- Avoid using a single active ingredient or mode of action (same insecticide group) exclusively for season long control of insect species with more than one generation per crop season.
- For insect species with successive or overlapping generations, use a treatment window approach. A treatment window is a period of time defined by the stage of crop development and the biology of the pests of concern. Within the treatment window, depending on the length of residual activity, single or consecutive applications may be made using seed, in-furrow, or foliar treatments unless otherwise excluded by product labels. Do not exceed the maximum amount of this insecticide's mode of action allowed per growing season.
- Following a treatment window of this insecticide's mode of action, rotate to a treatment window of effective products with a different mode of action before making additional applications of this insecticide.

If resistance to this product develops in your area, this product or other products with a similar mode of action may not provide adequate control. If poor performance cannot be attributed to improper application or weather conditions, a resistant strain of insect may be present. If you experience difficulty with control and resistance is a reasonable cause, immediately consult your local company representative or agricultural advisor for the best alternative method of control for the crop and use area.

Syngenta encourages responsible product stewardship to ensure effective long term control of the insect pests on this label.

For additional information on Insect Resistance Management:

- Contact Syngenta representatives at 1-800-334-9481
- Contact your local Cooperative Extension Service specialist, pest control advisor, or certified crop advisor
- Visit the Insecticide Resistance Action Committee (IRAC) on the web at: <http://www.irac-online.org>

GROUP	3	4	7	FUNGICIDES
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CruiserMaxx Vibrance Cereals contains difenoconazole, a Group 3 fungicide; mefenoxam, a Group 4 fungicide; and sedaxane, a Group 7 fungicide. Difenoconazole belongs to the triazole class of chemistry and is a demethylation inhibitor of sterol biosynthesis (DMI) which disrupts membrane synthesis of the fungal cell. Mefenoxam belongs to the phenylamide class of chemistry which interferes with fungal RNA synthesis. Sedaxane is a succinate dehydrogenase inhibitor (SDHI) and belongs to the carboxamide class of chemistry which disrupts cellular respiration and energy generation.

Fungal populations may contain individuals naturally resistant to Group 3, 4, or 7 fungicides and if used repeatedly in the same fields, then resistant members may eventually dominate the population. Because resistance development cannot be predicted, the use of this product should conform to sound resistance management strategies such as alternation with fungicides with a different mode of action and/or tank mixes established for the crop and use area.

Use should be based on an IPM program that includes field sanitation, scouting, historical information related to pesticide use, and crop rotation. The IPM program should also consider cultural, biological, and other chemical control practices.

Syngenta encourages responsible product stewardship to ensure effective long term control of the fungal diseases on this label.

For additional information on Fungicide Resistance Management:

- Contact Syngenta representatives at 1-800-334-9481
- Contact your local extension specialist or certified crop advisor
- Visit the Fungicide Resistance Action Committee (FRAC) on the web at: <http://www.frac.info>

MIXING INSTRUCTIONS

Important: Always re-circulate CruiserMaxx Vibrance Cereals thoroughly before using.

Follow the manufacturer application instructions for the seed treatment equipment being used.

Apply CruiserMaxx Vibrance Cereals as a water-based slurry utilizing standard slurry seed treatment equipment which provides uniform seed coverage. Uneven or incomplete seed coverage may not give the desired level of insect or disease control. Thoroughly mix the specified amount of CruiserMaxx Vibrance Cereals into the required amount of water or liquid inoculant for the slurry treater and dilution rate to be used.

Certain crops require addition of inoculants when the seed is treated or planted. CruiserMaxx Vibrance Cereals is compatible with several liquid inoculant products. Consult the manufacturer of the inoculant product and a Syngenta representative for directions before applying CruiserMaxx Vibrance Cereals with inoculants.

The total application volume must be sufficient to provide desired level of coverage. Dilution is typically done with water or liquid inoculants.

Continuous agitation or mixing of the slurry mixture is necessary to prevent settling out of the solution. Clean out any unused product from the treater after treating or maintain constant agitation if the leftover slurry will be maintained overnight.

- CruiserMaxx Vibrance Cereals contains an EPA approved dye/colorant that imparts an unnatural color to the seed as stated in 40 CFR 153.155(c).
- Allow seed to dry before bagging.

SEED BAG LABEL REQUIREMENTS

The Federal Seed Act requires that bags containing treated seeds shall be labeled with the following statements:

- This seed has been treated with sedaxane, difenoconazole, and mefenoxam fungicides and thiamethoxam insecticide.
- Do not use for feed, food, or oil purposes.

In addition, the following statements are required on bags containing seeds treated with CruiserMaxx Vibrance Cereals:

- Pollinator Precaution: Thiamethoxam is highly toxic to bees, and effects are possible as a result of exposure to translocated residues in blooming crops.
- Groundwater Advisory: Mefenoxam is known to leach through soil into groundwater under certain conditions as a result of label use. Thiamethoxam has properties and characteristics associated with chemicals detected in groundwater. These chemicals may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.
- Store away from food and feedstuffs.
- Wear long-sleeved shirt, long pants and chemical resistant gloves when handling treated seed.
- Treated seeds exposed on soil surface may be hazardous to wildlife. Cover or collect treated seeds spilled during loading.
- Do not allow children, pets, or livestock to have access to treated seed.
- Treated seed must be planted into the soil at a depth greater than 1 inch.
- Dispose of all excess treated seed. Leftover treated seed may be doublesown around the headland or buried away from water sources in accordance with local requirements.
- Do not contaminate water bodies when disposing of planting equipment wash waters.
- Dispose of seed packaging in accordance with local requirements.
- In the event of crop failure or harvest of a crop grown from seed treated with CruiserMaxx Vibrance Cereals, crops may be replanted according to the following schedule:

Plantback Interval Table

Immediate Plantback	Minimum 30-Day Plantback Interval
Canola	Alfalfa
Cereal Grains: Barley, Oat, Rye, Sweet Corn, Triticale, and Wheat	<i>Brassica</i> (Cole) Leafy Vegetables Crop Group 5
Chickpea	Cereal Grains: Buckwheat, Field Corn, Pearl Millet, Popcorn, Proso Millet, Rice, Sorghum, Teosinte, and Wild Rice
Cotton	
Potato	Cucurbit Vegetables Crop Group 9
Soybean	Fruiting Vegetables Crop Group 8
Sugarbeet	Leafy Vegetables Crop Group 4
	Legume Vegetables (Succulent or Dried) Crop Group 6
	Mint: Peppermint and Spearmint

Plantback Interval Table (continued)

Immediate Plantback	Minimum 30-Day Plantback Interval
	Oilseeds: Borage, Crambe, Flax Seed, Mustard Seed, and Safflower
	Onion, Bulb
	Peanut
	Root and Tuber Vegetables Crop Group 1
	Strawberry
	Sunflower
	Tobacco

- For any other crops the minimum plantback interval is 120 days from the date the seeds treated with CruiserMaxx Vibrance Cereals were planted. A cover crop other than the crops listed above that is planted for erosion control or soil improvement may be planted sooner than the 120 day interval; however, the crop may not be grazed or harvested for food or feed.
- Do not make any soil or foliar application of products containing thiamethoxam to crops grown from seed treated with CruiserMaxx Vibrance Cereals.
- Do not use at a rate that will result in more than 0.08 lb thiamethoxam per acre (36.3 grams ai/A) per season.
- Excess treated seed may be used for ethanol production only if (1) by-products are not used for livestock feed, and (2) no measurable residues of pesticide remain in the ethanol by-products that are used in agronomic practice.

CROP USE DIRECTIONS

Restrictions:

The maximum number of applications per season is 2.

Crop	Insects Protection Against	Use Rate fl oz/ 100 lb
Barley	Wireworms ¹ European Chafer ²	5 -10

Crop	Disease	Use Rate fl oz/ 100 lb
Barley	General Seed Rots ³ Seedling Blight, Root Rot, and Damping-Off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling Blight, Root Rot, and Damping-Off caused by soil-borne <i>Pythium</i> spp. ⁸ Seed-borne Septoria ⁴ Covered Smut False Loose Smut True Loose Smut	5 -10

Crop	Diseases Suppressed ⁵	Use Rate fl oz/ 100 lb
Barley	Common Root Rot (<i>Cochliobolus</i> spp.) <i>Fusarium</i> Crown and Foot Rot Take-All	5 -10

Crop	Insects Protection Against	Use Rate fl oz/ 100 lb
Oats	Wireworms ¹ European Chafer ²	5 -10

Crop	Diseases Controlled	Use Rate fl oz/ 100 lb
Oats	General Seed Rots ³ Seedling Blight, Root Rot, and Damping-Off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling Blight, Root Rot, and Damping-Off caused by soil-borne <i>Pythium</i> spp. ⁸ Seed-borne Septoria ⁴ Covered Smut Loose Smut	5 -10

Crop	Diseases Suppressed ⁵	Use Rate fl oz/ 100 lb
Oats	Common Root Rot (<i>Cochliobolus</i> spp.)	5 -10

Crop	Insects Protection Against	Use Rate fl oz/ 100 lb
Rye	Wireworms ¹ European Chafer ²	5 -10

Crop	Diseases Protection Against the Following	Use Rate fl oz/ 100 lb
Rye	General Seed Rots ³ Seedling Blight, Root Rot, and Damping-Off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling Blight, Root Rot, and Damping-Off caused by soil-borne <i>Pythium</i> spp. ⁸ Seed-borne Septoria ⁴ Common Bunt ⁶ Dwarf Bunt ⁶	5 -10

Crop	Diseases Suppressed ⁵	Use Rate fl oz/ 100 lb
Rye	Common Root Rot (<i>Cochliobolus</i> spp.) <i>Fusarium</i> Crown and Foot Rot Take-All	5 -10

Crop	Insect Protections Against	Use Rate fl oz/ 100 lb
Winter Wheat	Wireworms ¹ European Chafer ²	5 -10

Crop	Diseases Protection Against the Following	Use Rate fl oz/ 100 lb
Winter Wheat and Triticale	General Seed Rots ³ Seedling Blight, Root Rot, and Damping-Off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling Blight, Root Rot, and Damping-Off caused by soil-borne <i>Pythium</i> spp. ⁸ Seed-borne Septoria ⁴ <i>Septoria</i> Leaf Blotch ^{4,7} Common Bunt ⁶ Flag Smut <i>Fusarium</i> Seed Scab Dwarf Bunt ⁶ Karnal Bunt Loose Smut <i>Pythium</i> Damping Off ⁸	5 -10

continued...

Crop	Diseases Suppressed ⁵	Use Rate fl oz/ 100 lb
Winter Wheat and Triticale	Common Root Rot (<i>Cochliobolus</i> spp.) <i>Fusarium</i> Crown and Foot and Root Rot Take-All	5 -10

Crop	Insect Protection Against	Use Rate fl oz/ 100 lb
Spring Wheat	Wireworms ¹ European Chafer ²	5 -10

Crop	Diseases Protection Against the Following	Use Rate fl oz/ 100 lb
Spring Wheat	General Seed Rots ³ Seedling Blight, Root Rot, and Damping-Off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling Blight, Root Rot, and Damping-Off caused by soil-borne <i>Pythium</i> spp. ⁸ Seed-borne <i>Septoria</i> ² Fusarium Seed Scab Common Bunt ⁶ Karnal Bunt Loose Smut Pythium Damping Off ⁸	5 -10

Crop	Diseases Suppressed ⁵	Use Rate fl oz/ 100 lb
Spring Wheat	Common Root Rot (<i>Cochliobolus</i> spp.) <i>Fusarium</i> Crown and Foot and Root Rot Take-All	5 -10

¹The 5 fluid oz/100 lb rate of CruiserMaxx Vibrance Cereals provides suppression of wireworm activity. If pressure is moderate or high or control is required, use the higher rate of CruiserMaxx Vibrance Cereals.

²For control of European chafer activity, use the higher rate of CruiserMaxx Vibrance Cereals.

³Protection against general seed rots. This includes rots caused by saprophytic organisms such as *Fusarium*, *Pythium*, *Rhizoctonia*, *Penicillium* and *Aspergillus*.

⁴Use the 5 fluid oz/100 lb rate for protection against this disease.

⁵Suppression means consistent protection at a level which is not optimal but is still of commercial benefit.

⁶Protects against both seed- and soil-borne bunts (common, dwarf).

⁷Early season foliar disease protection for first 4 weeks after planting. For full season protection, apply a foliar fungicide according to label directions.

⁸For additional *Pythium* protection, add 0.0425 fl oz Apron XL®/100 lb seed.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage

Store in original containers only. Keep container closed when not in use. Do not store near food or feed. In case of spill on floor or paved surfaces, mop and remove to chemical waste storage area until proper disposal can be made if product cannot be used according to the label.

Pesticide Disposal

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

Container Handling [less than or equal to 5 gallons]

Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Container Handling [greater than 5 gallons– mini-bulk]

Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Container Handling [greater than 5 gallons - bulk]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER.

Apron XL[®], CruiserMaxx[®] Vibrance[®] Cereals, The ALLIANCE FRAME 
the SYNGENTA Logo and the PURPOSE ICON 
are Trademarks of a Syngenta Group Company

Viton[®] trademark of E. I. duPont de Nemours & Co., Inc.

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For non-emergency (e.g., current product information), call
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for:
Syngenta Crop Protection, LLC
P.O. Box 18300
Greensboro, North Carolina 27419-8300

SCP 1383A-L1B 0816
4071742

GROUP 4A INSECTICIDE

GROUP 3 4 7 FUNGICIDES



Insecticide with Fungicides

A seed treatment product for protection against damage from certain insects and diseases of cereals.

Active Ingredient:
Sedaxane (CAS No. 874967-67-6) 0.72%
Difenoconazole (CAS No. 119446-68-3) 3.34%
Mefenoxam (CAS Nos. 70630-17-0
and 69516-34-3) 0.86%
Thiamethoxam (CAS No. 153719-23-4) 2.78%

Other Ingredients: 92.30%
Total: 100.00%

CruiserMaxx Vibrance Cereals is a flowable concentrate for seed treatment containing 0.067 pounds of sedaxane, 0.31 pounds of difenoconazole, 0.079 pounds of mefenoxam, and 0.26 pounds of thiamethoxam per gallon

See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-1383
EPA Est. 100-NE-001

CruiserMaxx® Vibrance® Cereals and the Syngenta logo are trademarks of a Syngenta Group Company

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Manufactured for:
Syngenta Crop Protection, LLC
P. O. Box 18300
Greensboro, North Carolina 27419-8300

SCP 1383A-L1B 0816
4071742

2.5 gallons
Net Contents

KEEP OUT OF REACH OF CHILDREN. CAUTION

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

First Aid

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first five minutes, then continuing rinsing. Call a poison control center or doctor for treatment advice. **If swallowed:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything to an unconscious person. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. **If inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

HOT LINE NUMBER: For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372.

Environmental Hazards: This product is toxic to fish, shrimp and wildlife and highly toxic to aquatic invertebrates. If treated seed is spilled outdoors or in areas accessible to birds, promptly clean up or bury to prevent ingestion. Do not contaminate water when disposing of equipment wash water or rinsate.

Pollinator Precautions: Thiamethoxam is highly toxic to bees, and effects may be possible as a result of exposure to translocated residues in blooming crops.

Groundwater Advisory: Mefenoxam is known to leach through soil into groundwater under certain conditions as a result of label use. Thiamethoxam has properties and characteristics associated with chemicals detected in groundwater. These chemicals may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store in original containers only. Keep container closed when not in use. Do not store near food or feed. In case of spill on floor or paved surfaces, mop and remove to chemical waste storage area until proper disposal can be made if product cannot be used according to the label.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

Container Handling: Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER.



GROUP	4				INSECTICIDE
GROUP	3	4	7	12	FUNGICIDES

CRUISER® VIBRANCE® QUATTRO

SEED TREATMENT FUNGICIDES AND INSECTICIDE

SUSPENSION

AGRICULTURAL

A seed treatment for the control of listed insect pests and seed- and soil-borne diseases of cereal crops.

ACTIVE INGREDIENTS:

Thiamethoxam	61.5 g/L
Difenoconazole	36.9 g/L
Sedaxane	15.4 g/L
Metalaxyl-M (and S-isomer)	9.2 g/L
Fludioxonil.....	7.7 g/L

Contains 1,2-benzisothiazolin-3-one at 0.023%, 2-bromo-2-nitropropane-1,3-diol at 0.021%, 5-chloro-2-methyl-4-isothiazolin-3-one at 0.00008% and 2-methyl-4-isothiazolin-3-one at 0.000026% as preservatives.

Warning, contains the allergen soy.

**READ THE LABEL AND PAMPHLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN AND ANIMALS**

REGISTRATION NUMBER: **31453**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **1 L to 1050 L**

Syngenta Canada Inc.

140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

Special Use Restrictions:

All seed treated with this product must be conspicuously coloured at the time of treatment.

For use with commercial seed treaters (facilities and mobile treaters). No open transfer is permitted for commercial seed treatment (facilities and mobile treaters) of barley, wheat, oats, rye and triticale.

Label

1.0 NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

2.0 FIRST AID

IF POISONING IS SUSPECTED, IMMEDIATELY contact a physician or a poison control centre. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If in eyes, hold eye open and rinse slowly and gently with water for 15 – 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15 – 20 minutes. Call a poison control centre or doctor for treatment advice.

3.0 TOXICOLOGICAL INFORMATION

There is no specific antidote for this product if ingested. Treat symptomatically. Contains petroleum distillate – vomiting may cause aspiration pneumonia.

4.0 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN AND DOMESTIC ANIMALS. Wash hands and face after handling and before eating, using tobacco (including smoking), applying cosmetics, or using the toilet. Wear a dust mask when transferring seed to a storage bin. Avoid contamination of feed and foodstuffs.

CRUISER® VIBRANCE® QUATTRO is for use on-farm on barley, wheat, oats, rye, and triticale. This product can also be applied by commercial seed treaters (facilities and mobile treaters) using closed system transfer. Closed transfer includes closed mixing, loading, calibrating and closed treatment equipment.

For use with commercial seed treaters (facilities and mobile treaters).

Treat seed in a well-ventilated area.

NOTE: In case of accident, take the product label to the emergency facility or physician.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

For Commercial Seed Treatment

Cleaners must wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, work boots and socks. Treaters, baggers, sewers, stackers, forklift operators and others must wear cotton coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, work boots and socks. In addition, wear a NIOSH-approved dust mask when bagging or sewing bags of treated seed or when transferring seed to a storage bin.

For On-farm Treating

When treating seeds on-farm, all workers must wear coveralls over a long sleeved shirt, long pants, chemical-resistant gloves, work boots, socks and a NIOSH-approved dust mask. In addition, wear a NIOSH-approved dust mask when transferring seed to a storage bin.

For Planting

When planting (including loading, sowing, maintenance, and clean-up) wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, work boots, socks and NIOSH-approved dust mask. When using closed-cab planting equipment, chemical-resistant gloves and NIOSH-approved dust mask are not required inside cab. For good hygiene practice, it is also recommended to wear a suitable dust mask during all other job activities.

Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Wash splashes from skin IMMEDIATELY with plenty of water. Remove PPE immediately after handling this product. Wash the outside of gloves with soap and water before removing. As soon as possible, wash thoroughly and change into clean clothing. After spraying, wash hands and shower thoroughly with soap and water.

Heavily contaminated or drenched clothing and other absorbent materials contaminated with this product should be discarded. Do not reuse them.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Wear freshly laundered clothes daily.

6.0 ENVIRONMENTAL PRECAUTIONS

TOXIC to aquatic organisms.

Treated seed is toxic to birds and small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil or other surfaces.

TOXIC to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected.

7.0 USE RESTRICTIONS

1. Treated seed must not be used for food, feed or oil processing.
2. To prevent contamination, store away from food and feed.
3. For seed treated with CRUISER VIBRANCE QUATTRO, do not graze or feed livestock on treated areas for 45 days after planting.
4. Do not plant any crop other than cereals, corn, soybeans, members of Crop Subgroup 6C (dried, shelled peas and beans), members of Crop Subgroup 20A (canola and rapeseed subgroup) or potatoes within 60 days to fields in which seeds treated with CRUISER VIBRANCE QUATTRO were planted.
5. All bags containing treated seed for sale or use in Canada must be labelled or tagged as follows: **“This seed has been treated with the insecticide, thiamethoxam and the fungicides, difenoconazole, metalaxyl-M (and S-isomer), sedaxane and fludioxonil. Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, work boots, socks and NIOSH-approved dust mask when handling treated seed, and during planting (including loading, sowing, maintenance, and clean-up). When using closed-cab planting equipment, chemical-resistant gloves and NIOSH - approved dust mask are not required inside cab. Keep out of reach of children and animals. Do not graze or feed livestock on seeded area for 45 days after planting. Do not use for food, feed or oil processing. Store away from food and feed. Treated seed is TOXIC to birds. Thiamethoxam is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the “Pollinator Protection and Responsible Use of Treated Seed- Best Management Practices” on the Health Canada webpage on pollinator protection at www.canada.ca/pollinators. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.”**

8.0 STORAGE

To prevent contamination, store this product away from food or feed.

9.0 DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in

case of a spill, and for clean-up of spills.

For Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

For Returnable Containers

Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

For Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

CRUISER® and VIBRANCE® are trademarks of a Syngenta Group Company.

GROUP	4				INSECTICIDE
GROUP	3	4	7	12	FUNGICIDES

CRUISER® VIBRANCE® QUATTRO

SEED TREATMENT FUNGICIDES AND INSECTICIDE

SUSPENSION

AGRICULTURAL

A seed treatment for the control of listed insect pests and seed- and soil-borne diseases of cereal crops.

ACTIVE INGREDIENTS:

Thiamethoxam	61.5 g/L
Difenoconazole	36.9 g/L
Sedaxane	15.4 g/L
Metalaxyl-M (and S-isomer)	9.2 g/L
Fludioxonil.....	7.7 g/L

Contains 1,2-benzisothiazolin-3-one at 0.023%, 2-bromo-2-nitropropane-1,3-diol at 0.021%, 5-chloro-2-methyl-4-isothiazolin-3-one at 0.00008% and 2-methyl-4-isothiazolin-3-one at 0.000026% as preservatives.

Warning, contains the allergen soy.

**READ THE LABEL AND PAMPHLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN AND ANIMALS**

REGISTRATION NUMBER: **31453**
PEST CONTROL PRODUCTS ACT

Syngenta Canada Inc.

140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

Special Use Restrictions:

All seed treated with this product must be conspicuously coloured at the time of treatment.

For use with commercial seed treaters (facilities and mobile treaters). No open transfer is permitted for commercial seed treatment (facilities and mobile treaters) of barley, wheat, oats, rye and triticale.

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1.0 NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

2.0 FIRST AID

IF POISONING IS SUSPECTED, IMMEDIATELY contact a physician or a poison control centre. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If in eyes, hold eye open and rinse slowly and gently with water for 15 – 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15 – 20 minutes. Call a poison control centre or doctor for treatment advice.

3.0 TOXICOLOGICAL INFORMATION

There is no specific antidote for this product if ingested. Treat symptomatically. Contains petroleum distillate – vomiting may cause aspiration pneumonia.

4.0 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN AND DOMESTIC ANIMALS. Wash hands and face after handling and before eating, using tobacco (including smoking), applying cosmetics, or using the toilet. Wear a dust mask when transferring seed to a storage bin. Avoid contamination of feed and foodstuffs.

CRUISER® VIBRANCE® QUATTRO is for use on-farm on barley, wheat, oats, rye, and triticale. This product can also be applied by commercial seed treaters (facilities and mobile treaters) using closed system transfer. Closed transfer includes closed mixing, loading, calibrating and closed treatment equipment.

For use with commercial seed treaters (facilities and mobile treaters).

Treat seed in a well-ventilated area.

NOTE: In case of accident, take the product label to the emergency facility or physician.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

For Commercial Seed Treatment

Cleaners must wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, work boots and socks. Treaters, baggers, sewers, stackers, forklift operators and others must wear cotton coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, work boots and socks. In addition, wear a NIOSH-approved dust mask when bagging or sewing bags of treated seed or when transferring seed to a storage bin.

For On-farm Treating

When treating seeds on-farm, all workers must wear coveralls over a long sleeved shirt, long pants, chemical-resistant gloves, work boots, socks and a NIOSH-approved dust mask. In addition, wear a NIOSH-approved dust mask when transferring seed to a storage bin.

For Planting

When planting (including loading, sowing, maintenance, and clean-up) wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, work boots, socks and NIOSH-approved dust mask. When using closed-cab planting equipment, chemical-resistant gloves and NIOSH-approved dust mask are not required inside cab. For good hygiene practice, it is also recommended to wear a suitable dust mask during all other job activities.

Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Wash splashes from skin IMMEDIATELY with plenty of water. Remove PPE immediately after handling this product. Wash the outside of gloves with soap and water before removing. As soon as possible, wash thoroughly and change into clean clothing. After spraying, wash hands and shower thoroughly with soap and water.

Heavily contaminated or drenched clothing and other absorbent materials contaminated with this product should be discarded. Do not reuse them.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Wear freshly laundered clothes daily.

6.0 ENVIRONMENTAL PRECAUTIONS

TOXIC to aquatic organisms.

Treated seed is toxic to birds and small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil or other surfaces.

TOXIC to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected.

7.0 USE RESTRICTIONS

1. Treated seed must not be used for food, feed or oil processing.
2. To prevent contamination, store away from food and feed.
3. For seed treated with CRUISER VIBRANCE QUATTRO, do not graze or feed livestock on treated areas for 45 days after planting.
4. Do not plant any crop other than cereals, corn, soybeans, members of Crop Subgroup 6C (dried, shelled peas and beans), members of Crop Subgroup 20A (canola and rapeseed subgroup) or potatoes within 60 days to fields in which seeds treated with CRUISER VIBRANCE QUATTRO were planted.
5. All bags containing treated seed for sale or use in Canada must be labelled or tagged as follows: **“This seed has been treated with the insecticide, thiamethoxam and the fungicides, difenoconazole, metalaxyl-M (and S-isomer), sedaxane and fludioxonil. Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, work boots, socks and NIOSH-approved dust mask when handling treated seed, and during planting (including loading, sowing, maintenance, and clean-up). When using closed-cab planting equipment, chemical-resistant gloves and NIOSH - approved dust mask are not required inside cab. Keep out of reach of children and animals. Do not graze or feed livestock on seeded area for 45 days after planting. Do not use for food, feed or oil processing. Store away from food and feed. Treated seed is TOXIC to birds. Thiamethoxam is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators. To help minimize the dust generated during planting, refer to the “Pollinator Protection and Responsible Use of Treated Seed- Best Management Practices” on the Health Canada webpage on pollinator protection at www.canada.ca/pollinators. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.”**

8.0 STORAGE

To prevent contamination, store this product away from food or feed.

9.0 DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in

case of a spill, and for clean-up of spills.

For Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

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Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

For Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

10.0 PRODUCT INFORMATION

CRUISER VIBRANCE QUATTRO is a combination of the insecticide thiamethoxam and the fungicides difenoconazole, metalaxyl-M (and S-isomer), sedaxane and fludioxonil that controls or suppresses listed insect pests and seed- and soil-borne diseases of cereal crops, as listed below.

When seed is treated for post-planting protection against registered pests, CRUISER VIBRANCE QUATTRO will also provide protection during post-treatment storage of the seed against damage from many storage insect pests. Seed treated with thiamethoxam has been tested and found to be effective against rusty grain beetle, saw-toothed grain beetle, red flour beetle, rice weevil, lesser grain borer, European corn borer and Indian meal moth. It is recommended that seed with existing populations of storage pests be fumigated prior to treating and storage of that seed.

Thiamethoxam is a Group 4 Insecticide. Do not make any subsequent application of a Group 4 Insecticide (i.e., in-furrow or foliar application) following treatment with CRUISER VIBRANCE QUATTRO.

Note: Treatment of highly mechanically scarred or damaged seed, or seed known to be of low vigour and poor quality, may result in reduced germination and/or reduction of seed and seedling vigour. Treat a small quantity of seed using equipment similar to that planned for treating the total seed lot. Conduct germination tests on a small portion of the seed before committing the total seed lot to a selected seed treatment. Due to seed quality and seed storage conditions beyond the control of Syngenta Canada Inc., no claims are made to

guarantee the germination of carry-over seed.

Note: Experience has shown that strains of fungus resistant to metalaxyl-M (and S-isomer) may develop. Failure to control the disease will result in crop damage and/or yield losses. Since the occurrence of the resistance cannot be foreseen, Syngenta Canada Inc. accepts no responsibility for any loss of, or damage to, crops resulting from the failure of CRUISER VIBRANCE QUATTRO to control the resistant fungus strains. If disease appears in a treated field, consult the government extension specialist immediately.

11.0 DIRECTIONS FOR USE

11.1 General Information

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

CRUISER VIBRANCE QUATTRO is a ready-to-use water-based formulation for use in commercial seed treatment facilities or on-farm. Treatment equipment must provide uniform coverage of CRUISER VIBRANCE QUATTRO on the seed. Thorough seed coverage will offer the best protection of the seed from insect damage and disease. Uneven seed coverage may not give the desired level of disease/insect protection.

This product does not require the addition of water for application. Consult the manufacturer of the application equipment planned to be used for suitability for this application and for instructions on operation and calibration of the equipment.

Ideal storage temperature is above freezing and below 30 °C. Repeated freeze-thawing of CRUISER VIBRANCE QUATTRO will not affect the physical integrity of the product. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application.

This product contains a pigment that will adequately colour the treated seed. However, users are responsible for ensuring that the treated seed, when dried and ready for bagging, has an unnatural colour. If the pigment contained in the formulation does not colour the seed adequately, additional colourant must be added to the mixture while treating the seed. Follow instructions on the colourant package for mixing. Regulations pertaining to colouration of treated seed enforced under the “Seeds Act” must be strictly adhered to when using this product.

12.0 CROP USE DIRECTIONS

For control or suppression of certain seed- and soil-borne diseases and insects on small-grained cereals, apply 325 mL CRUISER VIBRANCE QUATTRO per 100 kg of seed to the crops listed below.

12.1 Crop Group 15 (Cereals)

CROP GROUP 15 (CEREALS)	
CROPS	Barley
INSECTS CONTROLLED	Wireworms European Chafer ¹
DISEASES CONTROLLED	Seed rots caused by <i>Fusarium</i> , <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Penicillium</i> and <i>Aspergillus</i> spp. Seedling blight, root rot, and damping-off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling blight, root rot, and damping-off caused by soil-borne <i>Pythium</i> spp. Covered smut (<i>Ustilago hordei</i>) False loose smut (<i>Ustilago nigra</i>) True loose smut (<i>Ustilago nuda</i>)
DISEASES SUPPRESSED²	Common root rot (<i>Cochliobolus sativus</i>) Fusarium crown and foot rot (<i>Fusarium</i> spp.) Take-all (<i>Gaeumannomyces graminis</i>)
RATE	325 mL/100 kg seed
NOTES	¹ For control of European chafer activity on wheat and barley, mix CRUISER VIBRANCE QUATTRO with CRUISER 5FS Seed Treatment to achieve a total use rate of 30 g of thiamethoxam per 100 kg seed. Consult each product label for registered use rates and follow all label use instructions. Read the label directions for each product and follow the most restrictive label precautions and limitations. ² Suppression means consistent control at a level that is not optimal but is still of commercial benefit.
CROPS	Oats
INSECTS CONTROLLED	Wireworms
DISEASES CONTROLLED	Seed rots caused by <i>Fusarium</i> , <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Penicillium</i> and <i>Aspergillus</i> spp. Seedling blight, root rot, and damping-off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling blight, root rot, and damping-off caused by soil-borne <i>Pythium</i> spp. Covered smut (<i>Ustilago hordei</i>) Loose smut (<i>Ustilago avenae</i>)
DISEASES SUPPRESSED¹	Common root rot (<i>Cochliobolus sativus</i>)
RATE	325 mL/100 kg seed
NOTES	¹ Suppression means consistent control at a level that is not optimal but is still of commercial benefit.

CROPS	Rye
INSECTS CONTROLLED	Wireworms
DISEASES CONTROLLED	Seed rots caused by <i>Fusarium</i> , <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Penicillium</i> and <i>Aspergillus</i> spp. Seedling blight, root rot, and damping-off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling blight, root rot, and damping-off caused by soil-borne <i>Pythium</i> spp. Common bunt (<i>Tilletia tritici</i>) ¹ Dwarf bunt (<i>Tilletia controversa</i>) ¹
DISEASES SUPPRESSED²	Common root rot (<i>Cochliobolus sativus</i>) Fusarium crown and foot rot (<i>Fusarium</i> spp.) Take-all (<i>Gaeumannomyces graminis</i>)
RATE	325 mL/100 kg seed
NOTES	¹ Controls both seed- and soil-borne bunts (common, dwarf). ² Suppression means consistent control at a level that is not optimal but is still of commercial benefit.
CROPS	Triticale
INSECTS CONTROLLED	Wireworms
DISEASES CONTROLLED	Seed rots caused by <i>Fusarium</i> , <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Penicillium</i> and <i>Aspergillus</i> spp. Seedling blight, root rot, and damping-off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling blight, root rot, and damping-off caused by soil-borne <i>Pythium</i> spp. Loose smut (<i>Ustilago tritici</i>)
DISEASES SUPPRESSED¹	Common root rot (<i>Cochliobolus sativus</i>) Fusarium crown and foot rot (<i>Fusarium</i> spp.) Take-all (<i>Gaeumannomyces graminis</i>)
RATE	325 mL/100 kg seed
NOTES	¹ Suppression means consistent control at a level that is not optimal but is still of commercial benefit.

CROPS	Winter Wheat
INSECTS CONTROLLED	Wireworms European Chafer ¹
DISEASES CONTROLLED	Seed rots caused by <i>Fusarium</i> , <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Penicillium</i> and <i>Aspergillus</i> spp. Seedling blight, root rot, and damping-off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling blight, root rot, and damping-off caused by soil-borne <i>Pythium</i> spp. Common bunt (<i>Tilletia tritici</i>) ² Dwarf bunt (<i>Tilletia controversa</i>) ² Loose smut (<i>Ustilago tritici</i>)
DISEASES SUPPRESSED³	Common root rot (<i>Cochliobolus sativus</i>) Fusarium crown and foot rot (<i>Fusarium</i> spp.) Take-all (<i>Gaeumannomyces graminis</i>)
RATE	325 mL/100 kg seed
NOTES	¹ For control of European chafer activity on wheat and barley, mix CRUISER VIBRANCE QUATTRO with CRUISER 5FS Seed Treatment to achieve a total use rate of 30 g of thiamethoxam per 100 kg seed. Consult each product label for registered use rates and follow all label use instructions. Read the label directions for each product and follow the most restrictive label precautions and limitations. ² Controls both seed- and soil-borne bunts (common, dwarf). ³ Suppression means consistent control at a level that is not optimal but is still of commercial benefit.
CROPS	Spring Wheat
INSECTS CONTROLLED	Wireworms European Chafer ¹
DISEASES CONTROLLED	Seed rots caused by <i>Fusarium</i> , <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Penicillium</i> and <i>Aspergillus</i> spp. Seedling blight, root rot, and damping-off caused by seed- and soil-borne <i>Fusarium</i> spp. or <i>Rhizoctonia</i> spp. Seedling blight, root rot, and damping-off caused by soil-borne <i>Pythium</i> spp. Common bunt (<i>Tilletia tritici</i>) ² Loose smut (<i>Ustilago tritici</i>)
DISEASES SUPPRESSED³	Common root rot (<i>Cochliobolus sativus</i>) Fusarium crown and foot rot (<i>Fusarium</i> spp.) Take-all (<i>Gaeumannomyces graminis</i>)
RATE	325 mL/100 kg seed
NOTES	¹ For control of European chafer activity on wheat and barley, mix CRUISER VIBRANCE QUATTRO with CRUISER 5FS Seed Treatment to achieve a total use rate of 30 g of thiamethoxam per 100 kg seed. Consult each product label for registered use rates and follow all label use instructions. Read the label directions for each product and follow the most restrictive label precautions and limitations. ² Controls both seed- and soil-borne bunts (common, dwarf). ³ Suppression means consistent control at a level that is not optimal but is still of commercial benefit.

12.2 Tank Mixes

When wireworm activity is high, CRUISER VIBRANCE QUATTRO can be tank mixed with CRUISER 5FS Seed Treatment to achieve a total use rate of 30 g of thiamethoxam per 100 kg seed. Consult each product label for registered use rates and follow all label use instructions. Read the label directions for each product and follow the most restrictive label precautions and limitations.

13.0 RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that CRUISER VIBRANCE QUATTRO contains Groups 3, 4, 7 and 12 and a Group 4 insecticide. Any fungal and (or) insect population may contain individuals naturally resistant to CRUISER VIBRANCE QUATTRO and other Groups 3, 4, 7 or 12 fungicides and Group 4 insecticides. A gradual or total loss of pest control may occur over time if these fungicides/insecticides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay insecticide and fungicide resistance:

Where possible, rotate the use of CRUISER VIBRANCE QUATTRO or other Groups 3, 4, 7 and 12 fungicides, Group 4 insecticides with different groups that control the same pathogens/insect pests.

Fungicide and insecticide use should be based on an Integrated Pest Management (IPM) program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological and other chemical control practices.

Monitor treated fungal and insect populations for sign of resistance development. If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide and insecticide product with a different target site of action, if available.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and (or) IPM recommendations for specific crops and disease problems in your area.

For further information and to report suspected resistance, contact Syngenta Canada Inc. at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

CRUISER® and VIBRANCE® are trademarks of a Syngenta Group Company.

SECTION 1: PRODUCT INFORMATION**Product Identifier:** CRUISER® VIBRANCE® QUATTRO**Formulation Number:** A20307A**Registration Number:** 31453 (Pest Control Products Act)**Product Use:** Insecticide. Fungicide. Seed treatment. Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3

SDS prepared by: Department of Regulatory & Biological Assessment, Syngenta Canada Inc.**For further information, contact:** 1-87-SYNGENTA (1-877-964-3682)**In Case of Emergency, Call: 1-800-327-8633 (FAST MED)****SECTION 2: HAZARDS IDENTIFICATION**

Classification in accordance with UN GHS Version 5.

Hazard Classification(s): Not classified under GHS.**Hazard Symbol(s):** Not applicable.**Signal Word:** Not applicable.**Hazard Statement(s):** Not applicable.**Precautionary Statement(s):****Prevention:** Not applicable.**Response:** Not applicable.**Storage:** Not applicable.**Disposal:** Not applicable.**Other Hazards Which do not Result in GHS Classification:** To avoid risk to human health and the environment, comply with the instructions for use. Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction. Warning, contains the allergen soy.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Common Name	CAS Number	Average % by weight
3-[(2-chloro-5-thiazolyl)methyl]tetrahydro-5-methyl-N-nitro-4H-1,3,5-oxadiazin-4-imine	Thiamethoxam	153719-23-4	5.7
1-[[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole	Difenoconazole	119446-68-3	3.45
N-[2-[1,1'-bicyclopropyl]-2-ylphenyl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide	Sedaxane	874967-67-6	1.44
Methyl-N-(2,6-dimethylphenyl)-N-(methoxyacetyl)-D-alaninate	Metalaxyl-M & S-isomer	70630-17-0	0.86
4-(2,2-difluoro-1,3-benzodioxol)-4-yl)-1H-pyrrole-3-carbonitrile	Fludioxonil	131341-86-1	0.72

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Safety Data Sheet with you when calling Syngenta, a poison control centre or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [1-800-327-8633 (1-800-FASTMED)], for further information.

Eye Contact: Flush eyes with clean water, holding eyelids apart for a minimum of 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eyes. Call Syngenta, a poison control centre or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

Skin Contact: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with running water for a minimum of 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

Inhalation: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

Ingestion: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to do so. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

Most Important Symptoms/Effects, Acute and Delayed:

May cause mild eye and skin irritation.

Indication of Immediate Medical Attention and Special Treatment:

There is no specific antidote.

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Suitable (and Unsuitable) Extinguishing Media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist. Cool closed containers exposed to fire with water spray. Do not use a solid water stream as it may scatter and spread the fire.

Specific Hazards Arising from the Product: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Special Protective Equipment and Precautions for Fire-Fighters: Wear full protective clothing and self-contained breathing apparatus. Evacuate non-essential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water run-off can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Control the spill at its source. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Use adequate ventilation and equipment and wear clothing as described in Section 8 and/or the product label.

Environmental Precautions: Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.

Methods and Materials for Containment and Cleaning Up: Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or seep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into a compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours, dust or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Conditions for Safe Storage, Including Any Incompatibilities: Store in original container in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Refer to the product label for specific storage recommendations, including minimum storage temperature and freeze/thaw stability. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL AND/OR ON-FARM APPLICATIONS.

Control Parameters:

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Propylene glycol	Not established	Not established	10 mg/m ³ TWA AIHA WEEL****; 50 ppm (155 mg/m ³) TWA (total vapour & particulates) (ON)	No	Yes
Thiamethoxam	Not established	Not established	3 mg/m ³ TWA***	No	Not established
Glycerin	15 mg/m ³ (total); 5 mg/m ³ (respirable)	10 mg/m ³ (total dust)	8 mg/m ³ TWA***; 10 mg/m ³ TWA (AB/BC/ON/QC)	No	Not established
Difenoconazole	Not established	Not established	5 mg/m ³ TWA***	No	Not established
Sedaxane	Not established	Not established	2 mg/m ³ TWA***	No	Not established
Metalaxyl-M & S-isomer	Not established	Not established	5 mg/m ³ TWA***	No	Not established
Fludioxonil	Not established	Not established	5 mg/m ³ TWA***	No	Not established

* Recommended by Manufacturer

** Recommended by NIOSH

*** Syngenta Occupational Exposure Limit (OEL)

**** Recommended by AIHA (American Industrial Hygiene Association)

† Material listed in Ingredient Disclosure List under the Hazardous Products Act

Appropriate Engineering Controls: If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV (threshold limit value). Warehouses, production areas, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

Individual Protection Measures:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

Ingestion: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

Eyes: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Skin: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: Use process enclosures, exhaust ventilation controls, good work practices and respiratory protection to minimize exposure to liquid mists or dust from dried product. Follow product label respirator requirements when using this formulate product to treat seed, bag seed, clean up equipment and conduct other miscellaneous activities. In case of emergency spills, use a NIOSH approved respirator with an organic vapour cartridge and any R, P95 or HE filter.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
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Appearance: Red liquid.

Formulation Type: Flowable suspension.

Physical State: Liquid.

Odour: Aromatic.

Odour Threshold: Not available.

pH: 6.7 (1% solution in deionized water @ 25 °C).

Melting Point: Not applicable.

Freezing Point: Not available.

Initial Boiling Point and Boiling Range: Not available.

Flash Point: > 102 °C (Pensky-Martens CC).

Evaporation Rate: Not available.

Flammability (solid/gas): Not applicable.

Lower Explosive Limit: Not applicable.

Upper Explosive Limit: Not applicable.

Vapour Pressure:	Thiamethoxam:	2.00 x 10 ⁻¹¹ mmHg @ 20 °C.
	Difenoconazole:	3.50 x 10 ⁻¹² mmHg @ 20 °C.
	Sedaxane:	1.30 x 10 ⁻⁹ mmHg @ 20 °C.
	Metalaxyl-M & S-isomer:	2.50 x 10 ⁻⁵ mmHg @ 20 °C.
	Fludioxonil:	2.90 x 10 ⁻⁹ mmHg @ 20 °C.

Vapour Density: Not available.

Relative Density: 1.073 g/cm³.

Solubility(ies):	Thiamethoxam:	4,100 mg/L @ 20 °C, pH 7 (water).
	Difenoconazole:	15 mg/L @ 20 °C, pH 7 (water).
	Sedaxane:	14 mg/L @ 20 °C, pH 7 (water).
	Metalaxyl-M & S-isomer:	26,000 mg/L @ 20 °C, pH 7 (water).
	Fludioxonil:	1.8 mg/L @ 20 °C, pH 7 (water).

Partition Coefficient (n-octanol water):	Thiamethoxam:	- 0.1
	Difenoconazole:	4.4
	Sedaxane:	3.3
	Metalaxyl-M & S-isomer:	1.7
	Fludioxonil:	4.1

Auto-Ignition Temperature: 450 °C.

Decomposition Temperature: Not available.

Viscosity: 410 mPa·s @ 20 °C.

Other Information: Not applicable.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical Stability: Stable under normal use and storage conditions.

Possibility of Hazardous Reactions: No hazardous reactions with normal handling and storage according to the label directions.

Conditions to Avoid: No decomposition if used as directed.

Incompatible Materials: No substances are known which lead to the formation of hazardous substances or thermal reactions.

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Dermal, inhalation, oral.

Symptoms of Acute Exposure: May cause mild eye and skin irritation.

Potential Health Effects: Not applicable.

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Low Acute Toxicity</u> Oral (LD50 Rat)	> 5,000 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u> Dermal (LD50 Rat)	> 5,000 mg/kg body weight
Inhalation:	<u>Low Acute Toxicity</u> Inhalation (LC50 Rat)	> 2.59 mg/L air – 4 hours Assessment: The product or mixture has no acute inhalation toxicity.
Eye Contact:	<u>Minimally Irritating (Rabbit)</u>	
Skin Contact:	<u>Slightly Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

Specific Target Organ Toxicity (STOT) Single Exposure:

Thiamethoxam:	Not classified as a specific target organ toxicant, single exposure.
Difenoconazole:	Not classified as a specific target organ toxicant, single exposure.
Sedaxane:	Not classified as a specific target organ toxicant, single exposure.
Metalaxyl-M & S-isomer:	May cause substantial but temporary eye irritation.
Fludioxonil:	Not classified as a specific target organ toxicant, single exposure.

Specific Target Organ Toxicity (STOT) Repeated Exposure:

Thiamethoxam:	Did not show neurotoxicity in animal experiments.
Difenoconazole:	No adverse effect has been observed in chronic toxicity tests.
Sedaxane:	No adverse effect has been observed in chronic toxicity tests.
Metalaxyl-M & S-isomer:	No adverse effect has been observed in chronic toxicity tests.
Fludioxonil:	No adverse effect has been observed in chronic toxicity tests.

Carcinogenicity:

Thiamethoxam: Liver tumours at high doses noted in mice that are not relevant to humans.
 Difenoconazole: Did not show carcinogenic effects in animal experiments.
 Sedaxane: At extremely high doses, numerically higher incidences of uterine, thyroid and liver tumours (male and/or female rats) and liver tumours (male mice) were within the range of normal background variation and thus considered unrelated to treatment. Some Regulatory Authorities have taken a more conservative position that these high dose findings are treatment related in rats and mice. The dose levels where these findings occur are not relevant to human exposure levels.
 Metalaxyl-M & S-isomer: Did not show carcinogenic effects in animal experiments.
 Fludioxonil: Did not show carcinogenic effects in animal experiments.

Reproductive Toxicity:

Thiamethoxam: Did not show reproductive toxicity effects in animal experiments.
 Difenoconazole: Did not show reproductive toxicity effects in animal experiments.
 Sedaxane: Did not show reproductive toxicity effects in animal experiments.
 Metalaxyl-M & S-isomer: Did not show reproductive toxicity effects in animal experiments.
 Fludioxonil: Did not show reproductive toxicity effects in animal experiments.

Mutagenicity:

Thiamethoxam: Did not show mutagenic effects in animal experiments.
 Difenoconazole: Did not show mutagenic effects in animal experiments.
 Sedaxane: Did not show mutagenic effects in animal experiments.
 Metalaxyl-M & S-isomer: Did not show mutagenic effects in animal experiments.
 Fludioxonil: Did not show mutagenic effects in animal experiments.

Aspiration Hazard:

Thiamethoxam: Not classified as an aspiration hazard.
 Difenoconazole: Not classified as an aspiration hazard.
 Sedaxane: Not classified as an aspiration hazard.
 Metalaxyl-M & S-isomer: Not classified as an aspiration hazard.
 Fludioxonil: Not classified as an aspiration hazard.

Other Toxicity Information:

Thiamethoxam: No adverse effects are expected below the occupational exposure limit and when the product is handled and used according to the label.

Toxicity of Other Components:

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

Propylene glycol: Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.
 Glycerin: Repeated or prolonged exposure to concentrated solution may result in dermatitis.

SECTION 12: ECOLOGICAL INFORMATION

Eco-Acute Toxicity:

Thiamethoxam:		
Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀	>	106 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀	>	100 ppm
Birds (8-day dietary – Bobwhite Quail) LC ₅₀	>	5,200 ppm
Difenoconazole:		
Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀		0.77 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀		1.6 ppm
Birds (21-day dietary – Mallard Duck) LD ₅₀	>	2,500 ppm
Sedaxane:		
Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀		6.1 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀		1.1 ppm
Birds (8-day dietary – Bobwhite Quail) LC ₅₀	>	2,000 ppm
Metalaxyl-M & S-isomer:		
Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀		28 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀		130 ppm
Birds (5-day dietary – Bobwhite Quail) LD ₅₀	>	5,000 ppm
Fludioxonil:		
Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀		0.9 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀		0.23 ppm
Birds (8-day dietary – Mallard Duck) LC ₅₀ /EC ₅₀	>	5,200 ppm

Persistence & Degradability:

Thiamethoxam:	Moderately persistent in soil. Low persistence in water.
Difenoconazole:	Moderately persistent to persistent in soil. Persistent in water; partitions to sediment.
Sedaxane:	Moderately persistent in soil. Persistent in water; partitions to sediment.
Metalaxyl-M & S-isomer:	Moderately persistent in soil. Persistent in water; partitions to sediment.
Fludioxonil:	Moderately persistent in soil. Persistent in water; partitions to sediment.

Bioaccumulation Potential:

Thiamethoxam:	BCF < 500; does not bioaccumulate.
Difenoconazole:	BCF < 500; does not bioaccumulate.
Sedaxane:	BCF < 500; does not bioaccumulate.
Metalaxyl-M & S-isomer:	BCF < 500; does not bioaccumulate.
Fludioxonil:	BCF < 500; does not bioaccumulate.

Mobility in Soil:

Thiamethoxam:	Moderately mobile in soil.
Difenoconazole:	Low mobility in soil.
Sedaxane:	Low mobility in soil.
Metalaxyl-M & S-isomer:	Moderate mobility in soil.
Fludioxonil:	Low mobility in soil.

Other Adverse Effects: Not applicable.

SECTION 13: DISPOSAL CONSIDERATIONS**Disposal Methods:**

Waste from residues: Refer to the product label for specific disposal/recycling information.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Refer to the product label for specific disposal/recycling information.
Empty remaining contents
Triple rinse containers
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not reuse empty containers.

SECTION 14: TRANSPORT INFORMATION**TDG Classification – Road/Rail:**

Not regulated as a dangerous good.

Water Transport – International (IMDG):

UN Number: UN 3082
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Thiamethoxam, Difenoconazole, Sedaxane, Metalaxyl-M & S-isomer, Fludioxonil), Marine Pollutant.
Transport Hazard Class: Class 9
Packing Group: PG III
Environmental Hazards: Marine pollutant.

Air Transport (IATA-DGR):

UN Number: UN 3082
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Thiamethoxam, Difenoconazole, Sedaxane, Metalaxyl-M & S-isomer, Fludioxonil).
Transport Hazard Class: Class 9
Packing Group: PG III
Environmental Hazards: Marine pollutant.

Special Precautions for User:

Not applicable.

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable.

SECTION 15: REGULATORY INFORMATION

There are Canada-specific environmental requirements for handling, use and disposal of this pest control product that are indicated on the product label.

Hazardous Products Act Information:

This product has been classified in accordance with the amended Hazardous Products Act and the Hazard Criteria of the Hazardous Products Regulations (HPR), and the SDS contains all the information required by the HPR.

Hazardous Products Act Information: WHMIS 2015 Classification

This product is exempt under WHMIS 2015.

Pest Control Products Act (PCPA) Registration No.: 31453

Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:

PCPA Label Hazard Communications:

Read the label and pamphlet before using.

Keep out of reach of children.

Warning, contains the allergen soy.

Allergens Contained in the Pest Control Product:

Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction.

Contains the allergen soy.

NPRI Components:

Not applicable.

SECTION 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant SDS. Hazardous properties of all ingredients have been considered in the preparation of this SDS. Read the entire SDS for the complete hazard evaluation of this product.

Full Text of Abbreviations:

AB – Province of Alberta

BC – Province of British Columbia

BCF – Bioconcentration factor

EC₅₀ – Effective concentration, 50%

GHS – Globally Harmonized System of Classification and Labeling of Chemicals

LC₅₀ – Lethal concentration, 50%LD₅₀ – Lethal dose, 50%

IARC – International Agency for Research on Cancer

IATA-DGR – International Air Transport Association

Dangerous Goods Regulations

IMDG – International Maritime Code for Dangerous Goods

NTP – National Toxicology Program

ON – Province of Ontario

OSHA – Occupational Safety & Health Administration

PEL – Permissible Exposure Limit

TDG – Transportation of Dangerous Goods

TLV – Threshold Limit Value

QC – Province of Quebec

SDS – Safety Data Sheet

WHMIS – Workplace Hazardous Materials Information System

Changes since last revision: Converted to SDS format.

Revision Date (Y-M-D): 2018-05-02

Supersedes Date (Y-M-D): 2017-12-31

Prepared by: Syngenta Canada Inc.

1-87-SYNGENTA (1-877-964-3682)

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END OF SAFETY DATA SHEET.

SAFETY DATA SHEET

EMERGENCY CALL: 1-800-424-9300 (CHEMTREC)



1. IDENTIFICATION

PRODUCT NAME: Alligare Diquat Herbicide

DESCRIPTION: A liquid herbicide.

EPA Reg. No.: 81927-35

COMPANY IDENTIFICATION:

Alligare, LLC

13 N. 8th Street

Opelika, AL 36801

2. HAZARD IDENTIFICATION

DANGER

Toxic if inhaled (H331)

Harmful if swallowed (H302)

May be corrosive to metals (H290)

Very toxic to aquatic life with long lasting effects (H400+H410)



HAZARD CLASSIFICATION

Health Hazard

Acute Toxicity, Inhalation

Acute Toxicity, Oral

Category

3

4

Environmental Hazards

Hazardous to the Aquatic Environment, Acute

Hazardous to the Aquatic Environment, Chronic

Category

1

1

Physical Hazard

Corrosive to Metals

Category

1

OTHER HAZARDS THAT DO NOT RESULT IN CLASSIFICATION

None

PRECAUTIONARY STATEMENTS

Avoid breathing mist/vapors/spray. Use only outdoors or in a well-ventilated area. (P261+P271)

Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. (P264+P270)

Keep only in original packaging. (P234)

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a poison control center or doctor. Refer to the Specific Treatment information in Section 4 for further instructions. (P304+P340+P311+P321)

Store in a well-ventilated place. Keep container tightly closed. Store locked up. (P403+P233+P405)

IF SWALLOWED: Call a poison control center or doctor if you feel unwell. Rinse mouth. (P301+P312)

Avoid release to the environment. Collect spillage. Absorb spillage to prevent material-damage. (P273+P391+P390)

Dispose of contents / container in accordance with local regulations. Refer to the product label for specific disposal instructions. (P501)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Common Name

Diquat dibromide

Chemical Name

[6,7-dihydrodipyrido(1,2-a:2',1'-c) pyrazinedium dibromide]

CAS

85-00-7

Composition

37.3%

4. FIRST AID MEASURES

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

NOTE TO PHYSICIAN: To be effective, treatment for diquat poisoning must begin IMMEDIATELY. Treatment consists of binding diquat in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination, and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis.

5. FIREFIGHTING MEASURES

Flash point (PMA-4): N/A

Flammable Limits (LFL-UFL): N/A

Fire and Explosion Hazards: Not a fire or explosion hazard.

Means of Extinction: Foam, dry chemical or CO₂

Fire Fighting Instructions: Evacuate nonessential personnel to prevent exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area and equipment until decontaminated. Dike and collect any runoff to prevent entry to drains or water bodies.

Firefighting Equipment: Self-contained breathing apparatus and full bunker gear.

Hazardous Combustion Products: Thermal decomposition may result in irritating and possibly toxic gasses.

NFPA Ratings: Health – 2 / Flammability – 1 / Reactivity – 0

6. ACCIDENTAL RELEASE MEASURES

Clean up spills immediately observing the precautions in Section 8 of this SDS. Control spill at the source and dike spill to prevent material from entering soil, sewers, waterways or low areas. Cover entire spill with absorbing material and place into compatible disposal containers. Scrub the area with hard water detergent (e.g., Tide, Joy, Spic and Span) and pick up wash liquid with absorbent and place into compatible disposal containers. Once all material is cleaned up and placed in disposal containers, seal the containers and arrange for disposition.

7. HANDLING AND STORAGE

Handling: Avoid breathing spray mist. Avoid contact with eyes or clothing. Remove clothing / PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Storage: Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, foodstuffs, or drinking water. Do not store or transport near feed or food. Store at temperatures above 32°F.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Handle only with adequate ventilation. Facilities storing or utilizing this material should be equipped with an eyewash station and a safety shower.

Protective Clothing: Chemical-resistant gloves, chemical resistant footwear plus socks, protective eyewear, coveralls over short-sleeved shirt and short pants or coveralls over long-sleeved shirt and long pants. Chemical-resistant headgear for overhead exposure. Chemical-resistant apron when cleaning equipment, mixing or loading. Face shield when mixing or loading.

General: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	dark brown liquid	pH:	5.5-6.5
Odor:	odorless	Kinematic viscosity:	1.6264 mP.s
Melting/freezing point:	not available	Solubility:	not available
Boiling point/Boiling range:	not available	Partition coefficient:	not available
Flammability:	not available	Vapor pressure:	not available
Flammability limits (upper/lower):	not available	Density:	1.2006 mg/L
Flash point:	not available	Relative vapor density:	not available
Auto-ignition temperature:	not available	Particle characteristics:	not available
Decomposition temperature:	not available		

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Heat, flame and extreme temperatures.

CHEMICAL STABILITY: Stable under normal use and storage conditions.

HAZARDOUS DECOMPOSITION PRODUCTS: When heated may thermally decompose releasing irritation or toxic gasses.

INCOMPATIBILITY WITH OTHER MATERIALS: Product reacts with aluminum to form flammable hydrogen gas, do not store in aluminum containers. Mix, store and apply only in plastic, plastic lined steel, stainless steel or fiberglass containers.

POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

ORAL TOXICITY (rat LD₅₀): 886 mg/kg

DERMAL TOXICITY (rat LD₅₀): > 5,050 mg/kg

INHALATION TOXICITY (rat LC₅₀): 0.62 mg/L (4-hour)

EYE IRRITATION: Rabbit – Mildly irritating

SKIN IRRITATION: Rabbit – Slightly irritating

SKIN SENSITIZATION: Not a contact sensitizer

CARCINOGENICITY:

EPA: Not Listed

ACGIH: Not Listed

IARC: Not Listed

NTP: Not Listed

OSHA: Not Listed

MUTAGENIC TOXICITY: Little evidence of mutagenic effects during *in vivo* or *in vitro* studies.

REPRODUCTIVE TOXICITY: No evidence in animal studies.

12. ECOLOGICAL INFORMATION

This product is toxic to aquatic invertebrates.

The following information is for the active ingredient, Diquat Dibromide:

AQUATIC TOXICITY

Rainbow Trout (96-hr LC₅₀): 14.83 ppm

Daphnia (48-hr EC₅₀): 0.77 ppm

Green Algae (EC₅₀): 9.4 ppb

Chronic estuarine/marine invertebrates (NOAEC): 0.052 mg/L

Duckweed (NOAEC): 0.0012 mg/L

AVIAN TOXICITY

Mallard Duck (8-day Dietary LC₅₀): 60.6 mg/kg

13. DISPOSAL CONSIDERATIONS

Do not contaminate water, food or feed by disposal.

PESTICIDE DISPOSAL: Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Nonrefillable container. Do not reuse or refill this container. Refer to the product label for specific container disposal instructions.

14. TRANSPORT INFORMATION

UN Number:	UN1760
Proper Shipping Name:	Corrosive Liquid, N.O.S. (contains diquat dibromide)
Transport Hazard Class:	8
Packing Group:	III
Hazard Zone:	A
Marine Pollutant:	Yes ¹
Hazardous Substance RQ:	Diquat (CAS #85-00-7): 1,000 lbs. (268 gallons of product)
Labels / Placards:	US-DOT: Class 8 Corrosive Liquid IMDG, IATA: Class 8 Corrosive Liquid
Emergency Guide:	154 (NAERG – North American Emergency Response Guide)
¹ Marine Pollutant Note:	Ground-only shipments are excluded from Marine Pollutant labeling requires as per 49CFR172.101 Appendix B (4). For any shipments involving all or part of the transport by vessel, the shipment must be classified as a Marine Pollutant.

Note: corrosive to aluminum

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

FIFRA –

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. The following is the hazard information as required on the pesticide label:

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with eyes or clothing.

See inside label booklet for additional Precautionary Statements and Directions for Use including Storage and Disposal instructions.

ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates.

For Terrestrial Uses, do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water.

For Aquatic Uses, do not apply directly to water except as specified on this label.

All pesticides are governed under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The regulatory information presented below is pertinent only when this product is handled outside of the normal use and application as a pesticide. This product is excluded from listing requirements under EPA/TSCA.

SARA Title III – Section 302 Extremely Hazardous Substances

Not listed

SARA Title III – Section 311/312 Hazard Categories

Immediate, Delayed

SARA Title III – Section 312 Threshold Planning Quantity

N/A

SARA Title III – Section 313 Reportable Ingredients

None

CERCLA –

Diquat (CAS #85-00-7): 1,000 lbs. (268 gallons of product)

CALIFORNIA PROP 65 STATUS –

This product does not contain any chemical known to the state of California to cause cancer or reproductive toxicity.

CANADA –

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

16. OTHER INFORMATION

THIS INFORMATION IN THIS SDS IS BASED ON DATA AVAILABLE AS OF THE REVISION DATE GIVEN HEREIN, AND BELIEVED TO BE CORRECT. CONTACT ALLIGARE, LLC TO CONFIRM IF YOU HAVE THE MOST CURRENT MSDS. JUDGMENTS AS TO THE SUITABILITY OF THE INFORMATION HEREIN FOR THE INDIVIDUAL'S OWN USE OR PURPOSES IS NECESSARILY THE INDIVIDUAL'S OWN RESPONSIBILITY. ALTHOUGH REASONABLE CARE HAS BEEN TAKEN IN THE PREPARATION OF SUCH INFORMATION, ALLIGARE, LLC EXTENDS NO WARRANTIES, MAKES NO REPRESENTATIONS, AND ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OR SUITABILITY OF SUCH INFORMATION FOR APPLICATION TO THE INDIVIDUAL'S PURPOSES OR THE CONSEQUENCES OF ITS USE.

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

SDS Version: 4.0

Effective Date: 06/12/18

Product Name: Eclipse* III A Herbicide**Issue Date:** 2014.04.02

Dow AgroSciences Canada Inc. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name

Eclipse* III A Herbicide

COMPANY IDENTIFICATION

Dow AgroSciences Canada Inc.
A Subsidiary of The Dow Chemical Company
Suite 2100, 450 1st Street SW
Calgary, AB T2P 5H1
Canada

For MSDS updates and Product Information: 800-667-3852**Prepared By:** Prepared for use in Canada by EH&S, Hazard Communications.
Revision 2014.04.02**Customer Information Number:** 800-667-3852
solutions@dow.com**EMERGENCY TELEPHONE NUMBER****24-Hour Emergency Contact:** 613-996-6666**Local Emergency Contact:** 613-996-6666

2. Hazards Identification

Emergency Overview**Color:** Red to brown**Physical State:** Liquid**Odor:** Sweet**Hazards of product:**

CAUTION! Combustible liquid and vapor. May cause eye irritation. May cause skin irritation. May cause respiratory tract irritation. Vapor explosion hazard. Vapors may travel a long distance; ignition and/or flash back may occur. Isolate area. Keep upwind of spill. Stay out of low areas. Eliminate ignition sources. Toxic fumes may be released in fire situations.

Potential Health Effects

Eye Contact: May cause mild eye discomfort. May cause eye irritation. May cause slight temporary corneal injury. Mist may cause eye irritation. Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin Contact: Prolonged contact may cause slight skin irritation with local redness.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: Mist may cause irritation of upper respiratory tract (nose and throat) and lungs. Excessive exposure (400 ppm) to isopropanol may cause eye, nose and throat irritation. Incoordination, confusion, hypotension, hypothermia, circulatory collapse, respiratory arrest and death may follow a longer duration or higher levels. Observations in animals include middle ear lining damage upon exposure to vapors of isopropanol. However, the relevance of this to humans is unknown

Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. Observations in animals include: Lethargy.

Aspiration hazard: Based on available information, aspiration hazard could not be determined.

Effects of Repeated Exposure: For the active ingredient(s): Based on available data, repeated exposures are not expected to cause significant adverse effects except at very high aerosol concentrations. Repeated excessive aerosol exposures may cause respiratory tract irritation and even death. Based on information for component(s): In animals, effects have been reported on the following organs: Liver. Kidney.

Birth Defects/Developmental Effects: For similar active ingredient(s): Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure. Based on information for component(s): Isopropanol has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. Composition/information on ingredients

Component	CAS #	Amount W/W
Clopyralid monoethanolamine salt	57754-85-5	40.9 %
Isopropanol	67-63-0	5.0 %
Balance	Not available	54.1 %

Amounts are presented as percentages by weight.

4. First-aid measures**Description of first aid measures**

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

Skin Contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Suitable emergency safety shower facility should be available in work area.

Eye Contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of immediate medical attention and special treatment needed

Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Hemodialysis may be of benefit if substantial amounts have been ingested and the patient is showing signs of intoxication. Consider hemodialysis for patients with persistent hypotension or coma unresponsive to standard therapy (isopropanol levels >400 - 500 mg/dl). (Goldfrank 1998, King et al, 1970). No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment. Repeated excessive exposure may aggravate preexisting lung disease.

5. Fire Fighting Measures

Suitable extinguishing media

To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

Special hazards arising from the substance or mixture

Hazardous Combustion Products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn. Container may rupture from gas generation in a fire situation.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

See Section 9 for related Physical Properties

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Vapor

explosion hazard. Keep out of sewers. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Handling

General Handling: Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling. Keep container closed. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Keep away from heat, sparks and flame. No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Electrically ground and bond all equipment.

Storage

Minimize sources of ignition, such as static build-up, heat, spark or flame. Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Isopropanol	CAD BC OEL	TWA	200 ppm
	CAD BC OEL	STEL	400 ppm
	CAD ON OEL	TWAEV	200 ppm
	CAD ON OEL	STEV	400 ppm
	ACGIH	TWA	200 ppm BEI
	ACGIH	STEL	400 ppm BEI
	OEL (QUE)	TWA	983 mg/m ³ 400 ppm
	OEL (QUE)	STEL	1,230 mg/m ³ 500 ppm
	CAD AB OEL	TWA	492 mg/m ³ 200 ppm
CAD AB OEL	STEL	984 mg/m ³ 400 ppm	
Ethylene oxide, propylene oxide and di-sec-butylphenol polymer	Dow IHG	TWA	2 mg/m ³

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Personal Protection

Eye/Face Protection: Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin Protection: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Appearance

Physical State	Liquid
Color	Red to brown
Odor	Sweet
pH	7.5 - 8.0
Melting Point	Not applicable
Freezing Point	No test data available
Boiling Point (760 mmHg)	100 °C
Flash Point - Closed Cup	47.2 °C <i>Closed Cup</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Vapor Pressure	23.5 mmHg @ 20 °C
Vapor Density (air = 1)	1.06 @ 20 °C
Specific Gravity (H ₂ O = 1)	1.161
Solubility in water (by weight)	Miscible with water
Partition coefficient, n-octanol/water (log Pow)	No data available for this product. See Section 12 for individual component data.
Autoignition Temperature	No test data available
Decomposition Temperature	No test data available
Dynamic Viscosity	7 cPs
Kinematic Viscosity	No test data available
Liquid Density	1.161 g/cm ³ @ 20 °C <i>Calculated</i>

10. Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Unstable at elevated temperatures.

Possibility of hazardous reactions

Polymerization will not occur.

Conditions to Avoid: Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid direct sunlight.

Incompatible Materials: Avoid contact with: Acids. Halogenated organics. Oxidizers. Avoid contact with metals such as: Aluminum. Zinc. Brass. Copper.

Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Chlorinated pyridine. Hydrogen chloride. Nitrogen oxides.

11. Toxicological Information

Acute Toxicity

Ingestion

As product: LD50, rat, male and female > 5,000 mg/kg

Dermal

As product: LD50, rabbit > 5,000 mg/kg

Inhalation

As product: LC50, 4 h, Aerosol, rat, male and female > 3.0 mg/l
Maximum attainable concentration. No deaths occurred at this concentration.

Eye damage/eye irritation

May cause mild eye discomfort. May cause eye irritation. May cause slight temporary corneal injury. Mist may cause eye irritation. Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin corrosion/irritation

Prolonged contact may cause slight skin irritation with local redness.

Sensitization

Skin

Did not cause allergic skin reactions when tested in guinea pigs.

Respiratory

No relevant information found.

Repeated Dose Toxicity

For the active ingredient(s): Based on available data, repeated exposures are not expected to cause significant adverse effects except at very high aerosol concentrations. Repeated excessive aerosol exposures may cause respiratory tract irritation and even death. Based on information for component(s): In animals, effects have been reported on the following organs: Liver. Kidney.

Chronic Toxicity and Carcinogenicity

Similar formulations did not cause cancer in laboratory animals.

Developmental Toxicity

For similar active ingredient(s): Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure. Based on information for component(s): Isopropanol has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive Toxicity

In animal studies, active ingredient did not interfere with reproduction.

Genetic Toxicology

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

12. Ecological Information

ToxicityData for Component: Clopyralid monoethanolamine salt

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

Fish Acute & Prolonged Toxicity

For similar active ingredient(s): Clopyralid. LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 h: > 99.9 mg/l

Aquatic Invertebrate Acute Toxicity

For similar active ingredient(s): Clopyralid. EC50, Daphnia magna (Water flea), static test, 48 h, immobilization: > 99.0 mg/l

Toxicity to Above Ground Organisms

For similar active ingredient(s): Clopyralid. oral LD50, Anas platyrhynchos (Mallard duck): 1465 - 2000 mg/kg bodyweight.

For similar active ingredient(s): Clopyralid. dietary LC50, Colinus virginianus (Bobwhite quail): > 5000 mg/kg diet.

For similar active ingredient(s): Clopyralid. contact LD50, Apis mellifera (bees): > 100 micrograms/bee

For similar active ingredient(s): Clopyralid. oral LD50, Apis mellifera (bees): > 98.1 micrograms/bee

Data for Component: Isopropanol

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 h: 9,640 mg/l

Aquatic Invertebrate Acute Toxicity

LC50, Daphnia magna (Water flea), static test, 24 h, immobilization: > 1,000 mg/l

Aquatic Plant Toxicity

NOEC, alga Scenedesmus sp., static test, Growth inhibition (cell density reduction), 7 d: 1,800 mg/l

ErC50, alga Scenedesmus sp., static test, Growth rate inhibition, 72 h: > 1,000 mg/l

Toxicity to Micro-organisms

EC50; activated sludge: > 1,000 mg/l

Aquatic Invertebrates Chronic Toxicity Value

Daphnia magna (Water flea), semi-static test, 21 d, NOEC: 30 mg/l

Persistence and DegradabilityData for Component: Clopyralid monoethanolamine salt

For similar active ingredient(s): Clopyralid. Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Data for Component: Isopropanol

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
95 %	21 d	OECD 301E Test	pass

53 %	5 d	Other guidelines	pass
Indirect Photodegradation with OH Radicals			
Rate Constant	Atmospheric Half-life		Method
7.26E-12 cm ³ /s	1.472 d		Estimated.
Biological oxygen demand (BOD):			
BOD 5	BOD 10	BOD 20	BOD 28
20 - 72 %		78 - 86 %	
Chemical Oxygen Demand: 2.09 mg/mg			
Theoretical Oxygen Demand: 2.40 mg/mg			

Bioaccumulative potential

Data for Component: **Clopyralid monoethanolamine salt**

Bioaccumulation: For similar active ingredient(s): Clopyralid. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Data for Component: **Isopropanol**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): 0.05 Measured

Mobility in soil

Data for Component: **Clopyralid monoethanolamine salt**

Mobility in soil: For similar active ingredient(s): Clopyralid., Potential for mobility in soil is very high (Koc between 0 and 50).

Data for Component: **Isopropanol**

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient, soil organic carbon/water (Koc): 1.1 Estimated.

Henry's Law Constant (H): 3.38E-06 - 8.07E-06 atm*m³/mole; 25 °C Estimated.

13. Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. Transport Information

TDG Small container

NOT REGULATED

TDG Large container

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.

Technical Name: CONTAINS ISOPROPANOL

Hazard Class: 3 **ID Number:** UN1993 **Packing Group:** PG III

IMDG

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.

Technical Name: CONTAINS ISOPROPANOL

Hazard Class: 3 **ID Number:** UN1993 **Packing Group:** PG III

EMS Number: F-E,S-E

Marine pollutant: No

ICAO/IATA

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.

Technical Name: CONTAINS ISOPROPANOL

Hazard Class: 3 ID Number: UN1993 Packing Group: PG III

Cargo Packing Instruction: 366

Passenger Packing Instruction: 355

15. Regulatory Information**CEPA - Domestic Substances List (DSL)**

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

Pest Control Products Act Registration number: 29032

National Fire Code of Canada

Class II

16. Other Information**Hazard Rating System**

NFPA	Health	Fire	Reactivity
	2	2	1

Recommended Uses and Restrictions**Identified uses**

Product use: End use herbicide product

Revision

Identification Number: 50397 / 1023 / Issue Date 2014.04.02 / Version: 8.2

DAS Code: XRM-3972

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
VOL/VOL	Volume/Volume

Dow AgroSciences Canada Inc. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: Eclipse III B Herbicide

Issue Date: 12/16/2015

Print Date: 12/16/2015

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Eclipse III B Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
2100 450 1ST STREET SW
CALGARY AB T2P 5H1
CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 12/16/2015

Print Date: 12/16/2015

Customer Information Number:

800-667-3852

solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid.

Color Yellow

Odor Amine.

Hazard Summary	WARNING!! May cause allergic skin reaction. May cause eye irritation. Isolate area.
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Potential Health Effects

Eyes: May cause moderate eye irritation.
May cause slight corneal injury.

Skin: Brief contact may cause slight skin irritation with local redness.
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Has demonstrated the potential for contact allergy in mice.

Inhalation: No adverse effects are anticipated from single exposure to mist.
Based on the available data, narcotic effects were not observed.

Ingestion: Very low toxicity if swallowed.
Harmful effects not anticipated from swallowing small amounts.

Chronic Exposure: For similar active ingredient(s).
Glyphosate.

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.
Weight of evidence evaluation of epidemiology studies supports no association between glyphosate exposure and cancer.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Plant growth regulator
This product is a mixture.

Component	CASRN	Weight percent
Glyphosate DMA Salt	34494-04-7	50.2%
Balance	Not available	49.8%

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse.

Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be available in work area.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Phosphorus oxides. Nitrogen oxides. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: This material will not burn until the water has evaporated. Residue can burn.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Do not store in: Galvanized containers. Steel.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Consult local authorities for recommended exposure limits.

Exposure limits have not been established for those substances listed in the composition, if any have been disclosed.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex").

Neoprene. Nitrile/butadiene rubber (“nitrile” or “NBR”). Polyethylene. Ethyl vinyl alcohol laminate (“EVAL”). Polyvinyl chloride (“PVC” or “vinyl”). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid.
Color	Yellow
Odor	Amine.
Odor Threshold	No data available
pH	4.59 <i>pH Electrode</i>
Melting point/range	Not applicable
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	closed cup > 100 °C <i>Setaflash Closed Cup ASTM D3828</i>
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	No data available
Water solubility	Soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No test data available
Dynamic Viscosity	32.5 mPa.s at 40 °C 62.3 mPa.s at 20 °C
Kinematic Viscosity	No data available

Explosive properties	No
Oxidizing properties	No significant increase (>5C) in temperature.
Liquid Density	1.2114 g/cm ³ at 20 °C <i>Digital density meter</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Active ingredient decomposes at elevated temperatures.

Incompatible materials: Avoid contact with: Acids. Halogens. Oxidizers. Peroxides. Flammable hydrogen may be generated from contact with metals such as: Steel.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrocarbons. Nitrogen oxides. Phosphorus oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:

LD50, Rat, female, > 5,000 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, Rat, male and female, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Based on the available data, narcotic effects were not observed.

As product:

LC50, Rat, male and female, 4 Hour, Aerosol, > 5.63 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight corneal injury.

Sensitization

Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For similar material(s):

Glyphosate.

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity

For similar active ingredient(s). Glyphosate. Did not cause cancer in laboratory animals. Weight of evidence evaluation of epidemiology studies supports no association between glyphosate exposure and cancer.

Teratogenicity

For similar active ingredient(s). Glyphosate. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity

For similar active ingredient(s). Glyphosate. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Mutagenicity

This material was not mutagenic in an Ames bacterial assay. Animal genetic toxicity studies were negative.

Genetic Toxicity in vivo

Mouse Bone Marrow Micronucleus Test Mouse male Oral gavage negativeResult: negative

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 11 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 17 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, 2.1 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, Coturnix japonica (Japanese quail), > 2250mg/kg bodyweight.

oral LD50, Apis mellifera (bees), 48 Hour, > 250µg/bee

contact LD50, Apis mellifera (bees), 48 Hour, > 250µg/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, survival, > 996.6 mg/kg

Persistence and degradability

Glyphosate DMA Salt

Biodegradability: For similar active ingredient(s). Glyphosate. Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Glyphosate DMA Salt

Bioaccumulation: For similar active ingredient(s). Glyphosate. Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is slight (Koc between 2000 and 5000). For similar active ingredient(s). Glyphosate. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

Glyphosate DMA Salt

For similar active ingredient(s).
Glyphosate.
Expected to be relatively immobile in soil (Koc > 5000).

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Glyphosate)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Glyphosate

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Glyphosate)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Glyphosate
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Glyphosate)
UN number	UN 3082
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container

volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act Registration Number: 29033

16. OTHER INFORMATION

Hazard Rating System

NFPA

Health	Fire	Reactivity
1	1	0

Revision

Identification Number: 101223205 / A215 / Issue Date: 12/16/2015 / Version: 2.0

DAS Code: GF-1280

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that

his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



Dow AgroSciences

Eclipse™ III Herbicide

GROUP	4	9	HERBICIDES
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AGRICULTURAL

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

This co-package contains:

Eclipse III A Herbicide
REGISTRATION NO. 29032 PEST CONTROL PRODUCTS ACT
GUARANTEE: clopyralid (present as the monoethanolamine salt) 360 g/L
Solution

Eclipse III B Herbicide
REGISTRATION NO. 29033 PEST CONTROL PRODUCTS ACT
GUARANTEE: Glyphosate (present as dimethylamine salt) 480 g/L
Solution



**DANGER – EYE AND SKIN IRRITANT
HARMFUL IF ABSORBED THROUGH SKIN
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: Eclipse III A Herbicide 1.0 L - bulk
Eclipse III B Herbicide 1.0 L - bulk

Dow AgroSciences Canada Inc.
Suite 2100, 450 - 1 Street S.W.
Calgary, Alberta
T2P 5H1
1-800-667-3852

®™ Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

Danger – Eye and skin irritant

Harmful if absorbed through skin

Potential skin sensitizer

DO NOT APPLY BY AIR

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

COMBUSTIBLE

Avoid contact with eyes, skin and clothing. Avoid breathing vapours or spray mist.

Workers must wear clean, body-covering coveralls over long pants, a long-sleeved shirt and chemical-resistant gloves. Goggles or a face shield are required during mixing and loading. Gloves are not required to be worn during groundboom applications but are required for mixing/loading, clean-up and repair. For application using hand-held equipment, wear chemical resistant gloves.

Do not enter or allow workers entry into treated areas for 12 hours following application to all crops.

AT COMPLETION OF SPRAYING OR END OF THE DAY: Take a shower immediately. Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse.

Workers should not enter treated fields within 12 hours of treatment. Workers who must enter fields within this time period should wear a long-sleeved shirt, long pants and chemical-resistant gloves.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this herbicide tank-mix should be mixed, stored and applied only in stainless steel, aluminum, fibreglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS HERBICIDE TANK-MIX IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This herbicide tank-mix reacts with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (for example, soils that are compacted or fine textured such as clay).

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store away from food, feedstuff, fertilizer, seeds, insecticides, fungicides or other pesticides or herbicides intended to be used on crops sensitive to clopyralid. Store in heated storage; if products are frozen, bring to room temperature and agitate before use. Soak up small amounts of spill with absorbent clays.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

DIRECTIONS FOR USE

GENERAL INFORMATION

Eclipse III Herbicide is a post emergent herbicide tank-mix intended for dilution with water and for use on glyphosate tolerant canola only. It is readily absorbed by both foliage and roots and translocates both upwards and downwards in plants. The tank-mix provides season long control of Canada thistle and control of other annual and perennial broad-leaved weeds.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Heavy rainfall immediately after application may wash the chemical off the foliage. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

MIXING AND APPLICATION PRECAUTIONS

AVOID CONTACT WITH FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

Do not use in greenhouses.

Apply only when the potential for drift to areas of human habitation or areas of human activity (such as houses, cottages, schools and recreational areas) is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment sprayer settings.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

DO NOT apply by air.

AVOID DRIFT - EXTREME CARE MUST BE USED WHEN APPLYING THIS TANK-MIX TO PREVENT INJURING DESIRABLE PLANTS AND CROPS. Do not allow spray mist to drift since even minute quantities of spray can cause severe damage or destruction to nearby crops, plants or other areas on which treatment is not intended, or may cause other unintended consequences. Do not apply when winds are gusty or in excess of 8 km/h or when other conditions, including lesser wind velocities, will allow drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in fine particles (mist) which are more likely to drift.

Residues of Eclipse III Herbicide can remain in the soil following the year of use, thereby affecting growth of sensitive crops. See crop rotation section.

APPLY ECLIPSE III HERBICIDE ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY.

ALWAYS USE PEDIGREED (I.E. CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

Some short-term, visual yellowing may occur when Eclipse III Herbicide is applied at the late application 4 to 6 leaf stage of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

Clean sprayer and parts immediately after using this herbicide tank-mix by thoroughly flushing with water. Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Use of this herbicide tank-mix in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep containers closed to prevent spills and contamination.

Crop Rotation

Fields previously treated with Eclipse III Herbicide can be seeded the following year to wheat, oats, barley, rye (not underseeded with legumes, clover or alfalfa), forage grasses, flax, canola, corn, mustard, sugar beets, field peas, or it can be summerfallowed. Seed only those crops listed above in the year following treatment. Do not seed to field peas for at least 10 months following treatment. Very dry soil conditions following application can result in a risk of injury to field peas grown in rotation. If severe drought conditions are experienced during the months of June to August inclusive in the year of application, delay seeding field peas an additional 12 months (total 22 months following application). Contact your local Dow AgroSciences Canada representative or retailer for more information before seeding field peas following drought conditions in the previous year.

Do not seed to crops other than those listed above in the calendar year following treatment.
Do not seed to field peas for at least 10 months following treatment.

Grazing

Allow 3 to 5 days before grazing treated areas.

Non-Target Sites

Avoid contamination of non-target land, water or irrigation ditches. Do not use Eclipse III Herbicide in the following areas: standing or flowing water, the inner banks or bottoms of irrigation ditches; in areas where surface water can run off to adjacent croplands either planted or to be planted to sensitive crops

Manure and Straw

Residues of the herbicide tank-mix occurring in the straw may be harmful to susceptible plants; therefore, do not use straw or crop residue from treated crops for composting or mulching susceptible broadleaved crops. If the straw or crop residue is used for animal bedding or feed, return the manure to fields to be planted to clopyralid tolerant crops such as wheat, barley, oats, rye, forage grasses, canola or flax. Do not grow susceptible crops such as peas, beans, lentils, potatoes, sunflowers or other sensitive crops on land which has been mulched with straw containing clopyralid residues within the last 12 months.

MIXING AND APPLICATION EQUIPMENT INFORMATION

To Reduce Spray Drift:

1. Use nozzles that deliver higher volumes and coarser droplets.
2. Use low pressures (200 to 275 kPa).
3. Use 100 L/ha of spray solution.
4. Spray when the wind velocity is 8 km/hr or less.

Equipment Clean-Up

Equipment used to apply Eclipse III Herbicide should not be used to apply other pesticides to sensitive crops without thorough cleaning. Contact your Eclipse III Herbicide dealer for a detailed equipment cleaning procedure.

MIXING AND APPLICATION DIRECTIONS

Spray Preparation

To prepare the spray solution, first add Eclipse III A Herbicide to the spray tank. Once it is half filled with water, add Eclipse III B Herbicide as the remaining water is put into the spray tank.

Application Rates

Eclipse III Herbicide will control the annual and perennial weeds listed in the table below. Apply 0.28 L/ha of Eclipse III A Herbicide and 0.94 L/ha of Eclipse III B Herbicide in 100 L of water per hectare. Apply when canola is in the 2-6 leaf stage. Ensure the crop has not advanced beyond the recommended growth stage.

Weeds Controlled
Annual Grasses: wild oats, green foxtail, volunteer barley, volunteer wheat
Annual Broad-leaved Weeds: stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's-quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, cleavers, wild buckwheat, shepherd's purse, cow cockle, night-flowering catchfly, smartweed
Perennial Weeds (season long control): quackgrass, Canada thistle, perennial sowthistle (season-long top growth), dandelion <15 cm diameter (season-long top growth), dandelion >15 cm diameter (suppression)

BUFFER ZONES

Uses of the following spray method or equipment DOES NOT require a buffer zone: hand-held.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, woodlots, hedgerows, riparian areas and shrublands).

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitat
field sprayer	canola	2

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the label for those tank-mix partners.

NOTE: Applicators may recalculate a site-specific buffer zone by combining information on current weather conditions and spray configuration for the following applications: all airblast applications, and for field and aerial applications which specify the following droplet size category wording on the product label: 'DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) [Fine or Medium or Coarse] classification.' To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Eclipse III Herbicide is both a Group 4 and a Group 9 herbicide. Any weed population may contain plants naturally resistant to Group 4 and/or Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same fields.

To delay herbicide resistance:

- Where possible, rotate the use of Eclipse III Herbicide or other Group 4 and Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.dowagro.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

040215

Label Code: CN-29032 29033-004-E

Replaces: CN-29032 29033-003-E

SPECIMEN LABEL NOTES:

Add corn and sugar beets to the rotational crops



Dow AgroSciences

Eclipse™ III Herbicide

GROUP	4	9	HERBICIDES
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AGRICULTURAL

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

This co-package contains:

Eclipse III A Herbicide
REGISTRATION NO. 29032 PEST CONTROL PRODUCTS ACT
GUARANTEE: clopyralid (present as the monoethanolamine salt) 360 g/L
Solution

Eclipse III B Herbicide
REGISTRATION NO. 29033 PEST CONTROL PRODUCTS ACT
GUARANTEE: Glyphosate (present as dimethylamine salt) 480 g/L
Solution



**DANGER – EYE AND SKIN IRRITANT
HARMFUL IF ABSORBED THROUGH SKIN
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: Eclipse III A Herbicide 1.0 L - bulk
Eclipse III B Herbicide 1.0 L - bulk

Dow AgroSciences Canada Inc.
Suite 2100, 450 - 1 Street S.W.
Calgary, Alberta
T2P 5H1
1-800-667-3852

®™ Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

Danger – Eye and skin irritant

Harmful if absorbed through skin

Potential skin sensitizer

DO NOT APPLY BY AIR

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

COMBUSTIBLE

Avoid contact with eyes, skin and clothing. Avoid breathing vapours or spray mist.

Workers must wear clean, body-covering coveralls over long pants, a long-sleeved shirt and chemical-resistant gloves. Goggles or a face shield are required during mixing and loading. Gloves are not required to be worn during groundboom applications but are required for mixing/loading, clean-up and repair. For application using hand-held equipment, wear chemical resistant gloves.

Do not enter or allow workers entry into treated areas for 12 hours following application to all crops.

AT COMPLETION OF SPRAYING OR END OF THE DAY: Take a shower immediately. Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse.

Workers should not enter treated fields within 12 hours of treatment. Workers who must enter fields within this time period should wear a long-sleeved shirt, long pants and chemical-resistant gloves.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this herbicide tank-mix should be mixed, stored and applied only in stainless steel, aluminum, fibreglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS HERBICIDE TANK-MIX IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This herbicide tank-mix reacts with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (for example, soils that are compacted or fine textured such as clay).

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store away from food, feedstuff, fertilizer, seeds, insecticides, fungicides or other pesticides or herbicides intended to be used on crops sensitive to clopyralid. Store in heated storage; if products are frozen, bring to room temperature and agitate before use. Soak up small amounts of spill with absorbent clays.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

DIRECTIONS FOR USE

GENERAL INFORMATION

Eclipse III Herbicide is a post emergent herbicide tank-mix intended for dilution with water and for use on glyphosate tolerant canola only. It is readily absorbed by both foliage and roots and translocates both upwards and downwards in plants. The tank-mix provides season long control of Canada thistle and control of other annual and perennial broad-leaved weeds.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

Heavy rainfall immediately after application may wash the chemical off the foliage. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

MIXING AND APPLICATION PRECAUTIONS

AVOID CONTACT WITH FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

Do not use in greenhouses.

Apply only when the potential for drift to areas of human habitation or areas of human activity (such as houses, cottages, schools and recreational areas) is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment sprayer settings.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

DO NOT apply by air.

AVOID DRIFT - EXTREME CARE MUST BE USED WHEN APPLYING THIS TANK-MIX TO PREVENT INJURING DESIRABLE PLANTS AND CROPS. Do not allow spray mist to drift since even minute quantities of spray can cause severe damage or destruction to nearby crops, plants or other areas on which treatment is not intended, or may cause other unintended consequences. Do not apply when winds are gusty or in excess of 8 km/h or when other conditions, including lesser wind velocities, will allow drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in fine particles (mist) which are more likely to drift.

Residues of Eclipse III Herbicide can remain in the soil following the year of use, thereby affecting growth of sensitive crops. See crop rotation section.

APPLY ECLIPSE III HERBICIDE ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY.

ALWAYS USE PEDIGREED (I.E. CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

Some short-term, visual yellowing may occur when Eclipse III Herbicide is applied at the late application 4 to 6 leaf stage of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

Clean sprayer and parts immediately after using this herbicide tank-mix by thoroughly flushing with water. Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Use of this herbicide tank-mix in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep containers closed to prevent spills and contamination.

Crop Rotation

Fields previously treated with Eclipse III Herbicide can be seeded the following year to wheat, oats, barley, rye (not underseeded with legumes, clover or alfalfa), forage grasses, flax, canola, corn, mustard, sugar beets, field peas, or it can be summerfallowed. Seed only those crops listed above in the year following treatment. Do not seed to field peas for at least 10 months following treatment. Very dry soil conditions following application can result in a risk of injury to field peas grown in rotation. If severe drought conditions are experienced during the months of June to August inclusive in the year of application, delay seeding field peas an additional 12 months (total 22 months following application). Contact your local Dow AgroSciences Canada representative or retailer for more information before seeding field peas following drought conditions in the previous year.

Do not seed to crops other than those listed above in the calendar year following treatment.
Do not seed to field peas for at least 10 months following treatment.

Grazing

Allow 3 to 5 days before grazing treated areas.

Non-Target Sites

Avoid contamination of non-target land, water or irrigation ditches. Do not use Eclipse III Herbicide in the following areas: standing or flowing water, the inner banks or bottoms of irrigation ditches; in areas where surface water can run off to adjacent croplands either planted or to be planted to sensitive crops

Manure and Straw

Residues of the herbicide tank-mix occurring in the straw may be harmful to susceptible plants; therefore, do not use straw or crop residue from treated crops for composting or mulching susceptible broadleaved crops. If the straw or crop residue is used for animal bedding or feed, return the manure to fields to be planted to clopyralid tolerant crops such as wheat, barley, oats, rye, forage grasses, canola or flax. Do not grow susceptible crops such as peas, beans, lentils, potatoes, sunflowers or other sensitive crops on land which has been mulched with straw containing clopyralid residues within the last 12 months.

MIXING AND APPLICATION EQUIPMENT INFORMATION

To Reduce Spray Drift:

1. Use nozzles that deliver higher volumes and coarser droplets.
2. Use low pressures (200 to 275 kPa).
3. Use 100 L/ha of spray solution.
4. Spray when the wind velocity is 8 km/hr or less.

Equipment Clean-Up

Equipment used to apply Eclipse III Herbicide should not be used to apply other pesticides to sensitive crops without thorough cleaning. Contact your Eclipse III Herbicide dealer for a detailed equipment cleaning procedure.

MIXING AND APPLICATION DIRECTIONS

Spray Preparation

To prepare the spray solution, first add Eclipse III A Herbicide to the spray tank. Once it is half filled with water, add Eclipse III B Herbicide as the remaining water is put into the spray tank.

Application Rates

Eclipse III Herbicide will control the annual and perennial weeds listed in the table below. Apply 0.28 L/ha of Eclipse III A Herbicide and 0.94 L/ha of Eclipse III B Herbicide in 100 L of water per hectare. Apply when canola is in the 2-6 leaf stage. Ensure the crop has not advanced beyond the recommended growth stage.

Weeds Controlled
Annual Grasses: wild oats, green foxtail, volunteer barley, volunteer wheat
Annual Broad-leaved Weeds: stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's-quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, cleavers, wild buckwheat, shepherd's purse, cow cockle, night-flowering catchfly, smartweed
Perennial Weeds (season long control): quackgrass, Canada thistle, perennial sowthistle (season-long top growth), dandelion <15 cm diameter (season-long top growth), dandelion >15 cm diameter (suppression)

BUFFER ZONES

Uses of the following spray method or equipment DOES NOT require a buffer zone: hand-held.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, woodlots, hedgerows, riparian areas and shrublands).

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitat
field sprayer	canola	2

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the label for those tank-mix partners.

NOTE: Applicators may recalculate a site-specific buffer zone by combining information on current weather conditions and spray configuration for the following applications: all airblast applications, and for field and aerial applications which specify the following droplet size category wording on the product label: 'DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) [Fine or Medium or Coarse] classification.' To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Eclipse III Herbicide is both a Group 4 and a Group 9 herbicide. Any weed population may contain plants naturally resistant to Group 4 and/or Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same fields.

To delay herbicide resistance:

- Where possible, rotate the use of Eclipse III Herbicide or other Group 4 and Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.dowagro.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

040215

Label Code: CN-29032 29033-004-E
Replaces: CN-29032 29033-003-E

SPECIMEN LABEL NOTES:

Add corn and sugar beets to the rotational crops

2016-2512
2016-07-26

(Container)

Edge™ Granular Herbicide

GROUP	3	HERBICIDE
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A selective granular herbicide for preplant weed control in oilseed and pulse crops.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

GUARANTEE: ethalfluralin 5%
granular

REGISTRATION NO. 20980 PEST CONTROL PRODUCTS ACT

POTENTIAL SKIN SENSITIZER

CAUTION: FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING.

NET CONTENTS: 25 kg

Gowan Company

P.O. Box 5569

Yuma, AZ 85366-5569

Product Information: 1-800-883-1844

PRECAUTIONS

POTENTIAL SKIN SENSITIZER
HARMFUL IF SWALLOWED OR ABSORBED THROUGH THE SKIN
AVOID CONTACT WITH SKIN, EYES AND CLOTHING
AVOID BREATHING DUST
KEEP OUT OF REACH OF CHILDREN
DO NOT APPLY BY AIR

Occupational exposure to this product may be hazardous to your health. When handling and applying pesticides, farm workers are subject to potential dermal (skin) exposure. Occupational exposure studies have shown that with the proper use of protective clothing, much of the potential exposure to Edge Granular Herbicide can be reduced.

Wear coveralls over a long-sleeved shirt and long pants, chemical resistant gloves and protective eyewear during all activities plus a respirator with a NIOSH approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH approved canister approved for pesticide while loading. In addition, when handling more than 110 kg a.i./day (78 ha at the maximum rate of 1.4 kg a.i./ha), wear a respirator as specified above while applying, or use a closed cab while applying. Change contaminated clothing daily and wash before reuse. Rinse gloves with water before removal and wash hands thoroughly before eating, drinking or smoking.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feed, drugs or clothing.

ENVIRONMENTAL HAZARD

Toxic to aquatic organisms. To reduce runoff from treated areas into aquatic habitats, DO NOT apply to areas with a moderate to steep slope, compacted soil, or clay. DO NOT apply when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the Edge Granular of the water body.

STORAGE

Store in areas not exposed to high temperatures or prolonged, direct sunlight. Also, do not let product remain standing in applicators under these conditions. After filling the granular applicator, close the lid immediately to avoid prolonged exposure to direct sunlight.

DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

(Booklet)



Edge™ Granular Herbicide

GROUP	3	HERBICIDE
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A selective granular herbicide for preplant weed control in oilseed and pulse crops.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

GUARANTEE: ethafluralin 5%
granular

REGISTRATION NO. 20980 PEST CONTROL PRODUCTS ACT

POTENTIAL SKIN SENSITIZER

CAUTION: FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING.

NET CONTENTS: 25 kg, 544 kg bulk bag

Gowan Company

P.O. Box 5569

Yuma, AZ 85366-5569

Product Information: 1-800-883-1844

PRECAUTIONS

POTENTIAL SKIN SENSITIZER

HARMFUL IF SWALLOWED OR ABSORBED THROUGH THE SKIN

AVOID CONTACT WITH SKIN, EYES AND CLOTHING

AVOID BREATHING DUST

KEEP OUT OF REACH OF CHILDREN

DO NOT APPLY BY AIR

Occupational exposure to this product may be hazardous to your health. When handling and applying pesticides, farm workers are subject to potential dermal (skin) exposure. Occupational exposure studies have shown that with the proper use of protective clothing, much of the potential exposure to Edge Granular Herbicide can be reduced.

Wear coveralls over a long-sleeved shirt and long pants, chemical resistant gloves and protective eyewear during all activities plus a respirator with a NIOSH approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH approved canister approved for pesticide while loading. In addition, when handling more than 110 kg a.i./day (78 ha at the maximum rate of 1.4 kg a.i./ha), wear a respirator as specified above while applying, or use a closed cab while applying. Change contaminated clothing daily and wash before reuse. Rinse gloves with water before removal and wash hands thoroughly before eating, drinking or smoking.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feed, drugs or clothing.

ENVIRONMENTAL HAZARD

Toxic to aquatic organisms. To reduce runoff from treated areas into aquatic habitats, DO NOT apply to areas with a moderate to steep slope, compacted soil, or clay. DO NOT apply when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the Edge Granular of the water body.

STORAGE

Store in areas not exposed to high temperatures or prolonged, direct sunlight. Also, do not let product remain standing in applicators under these conditions. After filling the granular applicator, close the lid immediately to avoid prolonged exposure to direct sunlight.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Edge Granular Herbicide is a preplant herbicide to provide long-lasting control of volunteer cereal, annual grass and broadleaved weeds. Edge Granular Herbicide controls susceptible weeds in the treated layer only, by killing seedlings as they germinate. It does not control established weeds.

GENERAL USE PRECAUTIONS

Application

- Do not apply Edge Granular Herbicide to peat or muck soils, or soils which contain more than 15% organic matter.
- Do not apply to fields spread with manure within the last 12 months. After this period, ensure the manure has been thoroughly disintegrated and mixed into the soil to a depth of 10 to 15 cm.
- If the swath or stubble is removed by burning, cultivate once to remove the charcoal layer from the soil surface prior to Edge Granular Herbicide application.
- Application to soils subject to prolonged periods of flooding may result in accelerated herbicide breakdown. Additionally, application to wet soils or soils in poor working condition could result in reduced weed control. See Land Preparation section of this label for further precautions.
- Do not apply to soils with less than 2% organic matter. Application to eroded knolls or grey-wooded soils with highly variable texture or organic matter may result in reduced crop stand, delayed development or reduced yields in either the treated crop or rotational crop.
- Apply uniformly at the recommended rates. Over-application caused by overlapping, improper calibration or uneven application may reduce crop stands in the treated crop or rotational crop.
- **DO NOT APPLY BY AIR.**

To avoid potential injury to future wheat rotational crops, to minimize the potential for carry over and accumulation of soil residues and to reduce the selection and spread of trifluralin resistant green foxtail, it is recommended that growers avoid applying trifluralin and/or ethalfluralin on the same land for two consecutive years.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Crop Year

- Applied according to directions, Edge Granular Herbicide will not harm the treated crops. However, seedling disease, deep planting, excessive moisture, high salt concentration, soil compaction or drought may weaken crop seedlings and increase the risk of injury, which may result in delayed crop development or reduced yields.
- To reduce the possibility of injury to the treated crop, use good quality certified seed. Seed shallow into a warm, moist firm seedbed using recommended agronomic practices which will promote rapid and even crop germination and emergence.
- CAUTION: Do not graze the treated crops or cut for hay. There are not sufficient data available to support such use.

Rotational Crop

- Applied according to label directions, Edge Granular Herbicide will not harm rotational crops. However, seedling disease, cold weather, deep planting, excessive moisture, high salt concentrations, soil compaction or drought may weaken seedlings and increase the risk of injury, which may result in delayed crop development or reduced yields.
- Do not seed , oats, sugar beets and small-seeded grasses such as timothy, canaryseed, grass and creeping red fescue following a crop treated with Edge Granular Herbicide.
- The persistence of Edge Granular Herbicide is influenced by soil moisture and the majority of breakdown occurs during the growing season. If drought or extended dry periods were present in the previous year, higher levels of Edge Granular Herbicide may be present in the soil. To reduce the possibility of injury to rotational crops, seed shallow into a warm moist seedbed using recommended agronomic practices and seeding depths. As an additional safety precaution seeding rate may be increased slightly (10%).
- When seeding a rotational crop, use good quality certified seed. Seed shallow into a warm, moist firm seedbed using recommended agronomic practices which will promote rapid and even crop germination and emergence. **Avoid deep seeding, loose seedbeds and seeding into cold soils.**
- Each crop has a specific seeding depth requirement and seeding deeper than recommended can increase the potential risk of damage to the seedling. Refer to industry or government extension published documents which outline recommended seeding practices/depths for each crop.

Western Canada Only - Do not seed wheat as a rotational crop on land if trifluralin and/or ethalfluralin has been used at an oilseed/special crop/barley rate for two consecutive crops.

Western Canada Only - When conventional tillage and incorporation use practices are followed (see Conventional Tillage Systems section), do not seed rotational crops directly into standing stubble if either trifluralin or ethalfluralin were applied in the previous crop year. Follow practices that support a quality seed bed to enhance germination and crop emergence

Weed Resistance

Populations of green foxtail tolerant to trifluralin have developed in a number of fields in Western Canada which have had a long history of repeated trifluralin use. Edge Granular Herbicide or trifluralin containing products (i.e., Treflan™, Bonzana or Rival, and Fortress) will not control trifluralin tolerant green foxtail. To delay selection or reduce the spread of trifluralin tolerant green foxtail, avoid the use of these products repeatedly in the same field or use a separate herbicide application for control of trifluralin tolerant green foxtail. Consult Resistance Management Recommendations section of this label for further information.

WEEDS CONTROLLED

Grasses Controlled

barnyard grass
crab grass
fall panicum
giant foxtail
green foxtail*
Johnsongrass (seedling)
witch grass
yellow foxtail

Broadleaved Weeds Controlled

blueweed
chickweed
corn spurry
cow cockle
kochia
lamb's-quarters
prostrate pigweed
purslane
redroot pigweed
wild buckwheat

*Edge Granular Herbicide will not control trifluralin resistant green foxtail. See specific recommendations in GENERAL USE PRECAUTIONS section of this label.

WEEDS SUPPRESSED*

cleavers hemp-
nettle lady's-thumb
nightshade
Russian thistle
volunteer barley**
volunteer wheat
wild oats

*Suppression is a visual reduction in weed competition (reduced population and/or vigour) as compared to an untreated area. Competition by weeds listed as suppressed that remain in a crop will vary depending upon factors such as crop competition, the number of weed seeds in the soil and the time of weed emergence relative to crop emergence.

**Suppression of volunteer barley will be enhanced by cultural and management practices which promote germination of volunteer barley prior to seedbed preparation.

CROPS REGISTERED

Western Canada

canola	fababeans
field peas	soybeans
mustard (yellow only)	dry common beans (white or kidney)
sunflowers	dill
alfalfa establishment	caraway
coriander	safflower
	lentils (fall application only)

Eastern Canada

soybeans
dry common beans (white or kidney)
canola

Application Rates

For control of a wide spectrum of grasses and broadleaved weeds, follow the rate and application directions provided below. Apply prior to weed emergence. Edge Granular Herbicide will not control weeds that are emerged at the time of treatment. Emerged weeds should be destroyed by cultivation or via a burn-down with glyphosate.

Western Canada: Spring Application - Recommended Rates of Edge Granular Herbicide

Soil	% of Organic Matter	Rates per Hectare for Specific Soil Textures	
		Light	Medium-Heavy
		sand sandy loam	loam, silt loam, silt, sandy clay loam, silty clay loam, clay loam, silty clay, clay
brown/dark brown	(2-4% om)	17 kg/ha	17 kg/ha
black	(4-6% om)	17 kg/ha	22 kg/ha
deep black	(6-15% om)	22 kg/ha	22-28 kg/ha

*For improved results on medium-heavy texture soils with 6 to 15% organic matter, the spring application rate may be increased to 28 kg/ha in fields with high populations of weeds.

Eastern Canada: Spring Application – Recommended Rates of Edge Granular Herbicide

Rates per Hectare for Specific Soil Textures		
Light	Medium	Heavy
sand sandy loam	loam silt loam silt sandy clay loam	silty clay loam clay loam silty clay clay
14 kg/ha	17 kg/ha	22 kg/ha

Western Canada: Fall Application - Recommended Rates of Edge Granular Herbicide

Soil	Organic Matter	Rates Per Hectare
		Medium-Heavy Textured Soils
		loam, silt loam, silt, sandy clay loam, silty clay loam, clay loam, silty clay, clay
brown/dark brown	(2-4% OM)	22 kg/ha
black	(4-6% OM)	28 kg/ha
deep black	(6-15% OM)	28 kg/ha

DIRECTIONS FOR USE – CONVENTIONAL TILLAGE SYSTEMS

FAILURE TO FOLLOW LABEL INSTRUCTION MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. USUAL OR STANDARD SEEDING PRACTICES MAY NOT SUFFICE. READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING.

Land Preparation

If existing weed growth is too heavy to allow uniform application and incorporation, destroy established weeds by cultivation or a pre-seed burn-down using glyphosate before application of Edge Granular Herbicide,

Application Instructions

Edge Granular Herbicide can be applied in the fall between September 1 and prior to freeze-up for weed control the following year, or it may be applied in the spring any time up to seeding.

Apply with a properly calibrated granular herbicide applicator that applies Edge Granular Herbicide uniformly. Avoid concentration of the material in narrow bands. Calibrate the applicator according to manufacturer's directions and check frequently during application to be sure equipment is operating correctly.

Apply Edge Granular Herbicide to a soil surface free of large clods and incorporate in the same operation if possible. **The first incorporation must be done within 24 hours of application.**

Incorporation

To incorporate, work Edge Granular Herbicide into the soil in two different directions. An even uniform layer of Edge Granular Herbicide treated soil is required to obtain optimum control of germinating weed seeds. Use a tandem disc, discer or field (vibra-shank type) cultivator set to work 8 to 10 cm deep for the first incorporation. A field cultivator (vibra-shank type) is defined as an implement with 3 or 4 rows of sweeps spaced at intervals of 20 cm or less and staggered so that no soil is left unturned. The second incorporation should be a disking or cultivation in a cross direction also at 8 to 10 cm deep. Operate disc implements at 7 to 10 km/hr and cultivators at 10 to 13 km/hr. Failure to operate implements at recommended speeds and depths may result in erratic weed control due to poor distribution of Edge Granular Herbicide in the soil (deep tillage cultivator is not recommended).

NOTE: For more effective weed control, it is recommended that the second incorporation be delayed at least 3 days following the first incorporation. This allows time for greater release of Edge Granular Herbicide onto soil particles and assures more uniform distribution in soils.

- Edge Granular Herbicide should not be incorporated with a field cultivator when the soil is crusted, lumpy or too wet for good mixing action.
- Disc type implements are preferred on stubble to ensure a 10 cm depth of operation and good mixing action.
- Incorporation with implements set to cut less than 8 cm deep or more than 10 cm deep may result in erratic weed control or crop damage.
- Rod weeders, harrows, deep tillage cultivators, chisel plows, vibra-chisels or hoe drills will not properly incorporate Edge Granular Herbicide.
- Single incorporation will not properly incorporate Edge Granular Herbicide and may result in poor weed control and/or crop damage.

Tillage For Seedbed Preparation

Spring tillage following fall or spring application of Edge Granular Herbicide should be done prior to seeding when the soil is warm enough to promote germination. Use a disc or field cultivator (vibra-shank) set to cut 5 to 8 cm deep. For optimum weed control in soils with heavy wild oat populations prework early in the spring with a shallow cultivation to promote weed seed germination, followed by a 5 to 8 cm deep cultivation prior to seeding to destroy existing green growth. Avoid transplanting weed seedlings; seed into a weed- free seedbed using accepted cultural practices. Avoid excessive compaction of the soil layer treated with Edge Granular Herbicide. Any operation that results in a more shallow or compacted treated layer may allow weeds to emerge. This compaction may result from tractor wheel tracks, implement wheels, drill press

wheels or other field operations done after incorporation. Soils are more susceptible to compaction when they are moist.

FALL APPLICATION

Edge Granular Herbicide can be applied in the fall between September 1 and prior to soil freeze-up for weed control the following year. On all deep black soils and heavy textured soils, early fall application is preferred to allow more time for even dispersion of Edge Granular Herbicide in the treated soil layer. Apply fall rates and incorporate as above. **The initial incorporation must be done within 24 hours of application.** For best results, it is recommended to do both incorporations in the fall, followed by tillage (5 to 8 cm) in the spring prior to planting.

Following the two fall incorporations of Edge Granular Herbicide, spring tillage should be done when the soil is warm enough to promote germination. Use a disc or vibra-shank cultivator set to cut 5 to 8 cm deep. Refer to Spring Application, Tillage for Seedbed Preparation section.

Following only one fall incorporation of Edge Granular Herbicide, a second incorporation is required in the spring. Incorporate to an 8 to 10 cm depth at a cross angle to the fall incorporation. For optimum weed control, complete the spring incorporation as soon as there are good soil working conditions early in the spring. Separate tillage for seedbed preparation must still be done prior to seeding.

Special Instructions For Lentils (Fall Application Only)

1. Edge Granular Herbicide application and at least one incorporation must be completed in the fall. Follow the Fall Application directions.
2. The seedbed should be shallowly tilled (5-8 cm) and packed just prior to seeding in the spring to ensure a firm seedbed and accurate depth of planting.
3. Seeding should be done with equipment that will place the seed uniformly and accurately. Do not seed more than 4 cm deep.
4. Use good quality seed and agronomic practices which will promote quick and even germination and emergence conditions. Avoid deep seeding, loose seedbeds and seeding into cold soils.
5. Refer to the use precaution statements regarding stresses that may lead to reduction in crop stand and vigour.

SPRING APPLICATION

Edge Granular Herbicide can be applied and incorporated in the spring prior to seeding. Apply Edge Granular Herbicide as soon as there are good soil working conditions early in the spring and **complete the first incorporation within 24 hours**, using a recommended implement operated 8 to 10 cm deep. The second incorporation (8 to 10 cm) must be delayed for a minimum of 3 days following the first incorporation. For best results, it is recommended to complete a separate tillage (5 to 8 cm) for seedbed preparation at least 3 days after the second incorporation.

DIRECTIONS FOR USE - DIRECT-SEEDING SYSTEMS

General

Direct-seeding is defined as seed placement into standing stubble (including chemical fallow) with minimum soil disturbance and maximum surface residue retention. Edge Granular Herbicide for weed control in direct-seeding systems is intended for use on soils which have been in a low disturbance, direct-seeding system with < 30% soil disturbance for at least two consecutive years. In the year of seeding, a one pass, direct-seeding operation with minimal soil disturbance (<30%) is recommended.

Edge Granular Herbicide applied to the soil surface provides long-lasting control of susceptible weeds within the top 2.5 cm of the soil surface. Edge Granular in direct-seeding systems is adsorbed to the soil surface and will not control weeds that germinate from a deeper depth (>2.5 cm),

Land Preparation

Crop Residue Management: Straw and chaff residue management begins at harvest. Chopping, spreading and even distribution of straw and chaff residues is an effective method of straw management. Uneven distribution of crop residues may create plugging or hairpinning during the seeding operation. Poor and uneven crop emergence, cold wet soils, soil nutrient tie-up and delayed and uneven maturity may also be a result of inadequate trash management.

Preseeding (Burn Off) Weed Control

A preseeding burn-off herbicide treatment is required to eliminate weed competition prior to crop emergence. Refer to the appropriate product labels. Edge Granular Herbicide will not control emerged weeds.

Application Instructions

Edge Granular Herbicide for weed control in direct-seeding systems is intended for use on soils which have been in a low disturbance, direct-seeding system (i.e., <30% soil disturbance) such as a zero-tillage system, for at least two consecutive years prior to application.

Apply Edge Granular Herbicide uniformly with a properly calibrated granular herbicide applicator. Avoid concentration of the herbicide in narrow bands. Calibrate the applicator according to manufacturer's directions and check frequently during application to ensure equipment is operating correctly. A single harrow operation assists in managing straw residue to ensure good herbicide soil contact. Avoid excessive soil disturbance.

Seeding Instructions

Use direct-seeding equipment seeding at a uniform depth to ensure seed-soil contact and rapid crop emergence. Minimum soil disturbance ensures a uniform herbicide layer at the soil surface.

FALL APPLICATION

Edge Granular Herbicide for weed control in direct-seeding systems may be applied in the fall between October 1 and prior to soil freeze-up for weed control the following year. Apply Edge Granular Herbicide at the fall rates listed above using a harrow operation to manage crop residue and ensure herbicide soil contact.

SPRING APPLICATION

Edge Granular Herbicide for weed control in direct-seeding systems may be applied in the spring. Spring applications should be made at the spring application rates listed above and applied as early as field conditions permit and at least 10 days prior to seeding. The shallow harrow incorporation should be performed within 24 hours of application.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Edge Granular Herbicide is a Group 3 herbicide. Any weed population may contain or develop plants naturally resistant to Edge Granular Herbicide and other Group 3 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Edge Granular Herbicide or other Group 3 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area issible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Gowan Company (1-800-883-1844).

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

All other products listed are registered trademarks of their respective companies.

(Container)

EDGE MICROACTIV Herbicide

GROUP	3	HERBICIDE
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A selective granular herbicide for preplant weed control in oilseed and pulse crops.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: ethalfuralin 10%
granular

REGISTRATION NO. 32904 PEST CONTROL PRODUCTS ACT



POISON
WARNING - EYE AND SKIN IRRITANT

POTENTIAL SKIN SENSITIZER

CAUTION: FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING.

NET CONTENTS: 25 kg

Gowan Company LLC

P.O. Box 5569

Yuma, AZ 85366-5569

Product Information: 1- 800-883-1844

PRECAUTIONS

CAUSES SKIN AND EYE IRRITATION

HARMFUL IF INHALED

POTENTIAL SKIN SENSITIZER

HARMFUL IF SWALLOWED OR ABSORBED THROUGH THE SKIN

AVOID CONTACT WITH SKIN, EYES AND CLOTHING

AVOID BREATHING DUST

KEEP OUT OF REACH OF CHILDREN

DO NOT apply using aerial application equipment

Occupational exposure to this product may be hazardous to your health. When handling and applying pesticides, farm workers are subject to potential dermal (skin) exposure. Occupational exposure studies have shown that with the proper use of protective clothing, much of the potential exposure to EDGE MICROACTIV Herbicide can be reduced.

Wear coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, socks and chemical-resistant footwear, and protective eyewear (goggles or face shield) during all activities, plus a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH-approved canister approved for pesticide while loading. In addition, when handling more than 110 kg a.i./day (78 ha at the maximum rate of 1.4 kg a.i./ha), wear a respirator as specified above while applying, or use a closed cab while applying. A closed cab provides both a physical barrier and respiratory protection (such as dust/mist filtering and/or vapour/gas purification system). The closed cab must have a chemical-resistant barrier that totally surrounds the occupant and prevents contact with pesticides outside the cab. Change contaminated clothing daily and wash before reuse. Rinse gloves with water before removal and wash hands thoroughly before eating, drinking or smoking.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feed, drugs or clothing.

ENVIRONMENTAL HAZARD

Toxic to aquatic organisms. To reduce runoff from treated areas into aquatic habitats, **DO NOT** apply to areas with a moderate to steep slope, compacted soil, or clay. **DO NOT** apply when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store in areas not exposed to high temperatures or prolonged, direct sunlight. Also, do not let product remain standing in applicators under these conditions. After filling the granular applicator, close the lid immediately to avoid prolonged exposure to direct sunlight.

DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

(Booklet)

Edge[®] MicroActiv[™] Herbicide

GROUP	3	HERBICIDE
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A selective granular herbicide for preplant weed control in oilseed and pulse crops.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: ethalfluralin 10%
granular

REGISTRATION NO. 32904 PEST CONTROL PRODUCTS ACT



POISON
WARNING - EYE AND SKIN IRRITANT

POTENTIAL SKIN SENSITIZER

CAUTION: FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING.

NET CONTENTS: 25 kg, 544 kg bulk bag

Gowan Company LLC

P.O. Box 5569

Yuma, AZ 85366-5569

Product Information: 1- 800-883-1844

PRECAUTIONS

CAUSES SKIN AND EYE IRRITATION

HARMFUL IF INHALED

POTENTIAL SKIN SENSITIZER

HARMFUL IF SWALLOWED OR ABSORBED THROUGH THE SKIN

AVOID CONTACT WITH SKIN, EYES AND CLOTHING

AVOID BREATHING DUST

KEEP OUT OF REACH OF CHILDREN

DO NOT apply using aerial application equipment

Occupational exposure to this product may be hazardous to your health. When handling and applying pesticides, farm workers are subject to potential dermal (skin) exposure. Occupational exposure studies have shown that with the proper use of protective clothing, much of the potential exposure to Edge® MicroActiv™ Herbicide can be reduced.

Wear coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, socks and chemical-resistant footwear, and protective eyewear (goggles or face shield) during all activities, plus a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH-approved canister approved for pesticide while loading. In addition, when handling more than 110 kg a.i./day (78 ha at the maximum rate of 1.4 kg a.i./ha), wear a respirator as specified above while applying, or use a closed cab while applying. A closed cab provides both a physical barrier and respiratory protection (such as dust/mist filtering and/or vapour/gas purification system). The closed cab must have a chemical-resistant barrier that totally surrounds the occupant and prevents contact with pesticides outside the cab. Change contaminated clothing daily and wash before reuse. Rinse gloves with water before removal and wash hands thoroughly before eating, drinking or smoking.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feed, drugs or clothing.

ENVIRONMENTAL HAZARD

Toxic to aquatic organisms. To reduce runoff from treated areas into aquatic habitats, **DO NOT** apply to areas with a moderate to steep slope, compacted soil, or clay. **DO NOT** apply when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store in areas not exposed to high temperatures or prolonged, direct sunlight. Also, do not let product remain standing in applicators under these conditions. After filling the granular applicator, close the lid immediately to avoid prolonged exposure to direct sunlight.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Edge[®] MicroActiv[™] is a preplant herbicide to provide long-lasting control of volunteer cereal, annual grass and broadleaved weeds. EDGE MICROACTIV Herbicide controls susceptible weeds in the treated layer only, by killing seedlings as they germinate. It does not control established weeds.

GENERAL USE PRECAUTIONS

Application

- Do not apply EDGE MICROACTIV Herbicide to peat or muck soils, or soils which contain more than 15% organic matter.
- Do not apply to fields spread with manure within the last 12 months. After this period, ensure the manure has been thoroughly disintegrated and mixed into the soil to a depth of 10 to 15 cm.
- If the swath or stubble is removed by burning, cultivate once to remove the charcoal layer from the soil surface prior to EDGE MICROACTIV Herbicide application.
- Application to soils subject to prolonged periods of flooding may result in accelerated herbicide breakdown. Additionally, application to wet soils or soils in poor working condition could result in reduced weed control. See Land Preparation section of this label for further precautions.
- Do not apply to soils with less than 2% organic matter. Application to eroded knolls or grey-wooded soils with highly variable texture or organic matter may result in reduced crop stand, delayed development or reduced yields in either the treated crop or rotational crop.
- Apply uniformly at the recommended rates. Over-application caused by overlapping, improper calibration or uneven application may reduce crop stands in the treated crop or rotational crop.
- **DO NOT** apply using aerial application equipment.

To avoid potential injury to future wheat rotational crops, to minimize the potential for carry over and accumulation of soil residues and to reduce the selection and spread of trifluralin resistant green foxtail, it is recommended that growers avoid applying trifluralin and/or ethalfluralin on the same land for two consecutive years.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Crop Year

- Applied according to directions, EDGE MICROACTIV Herbicide will not harm the treated crops. However, seedling disease, deep planting, excessive moisture, high salt concentration, soil compaction or drought may weaken crop seedlings and increase the risk of injury, which may result in delayed crop development or reduced yields.
- To reduce the possibility of injury to the treated crop, use good quality certified seed. Seed shallow into a warm, moist firm seedbed using recommended agronomic practices which will promote rapid and even crop germination and emergence.
- CAUTION: Do not graze the treated crops or cut for hay. There are not sufficient data available to support such use.

Rotational Crop

- Applied according to label directions, EDGE MICROACTIV Herbicide will not harm rotational crops. However, seedling disease, cold weather, deep planting, excessive moisture, high salt concentrations, soil compaction or drought may weaken seedlings and increase the risk of injury, which may result in delayed crop development or reduced yields.
- Do not seed , oats, sugar beets and small-seeded grasses such as timothy, canaryseed, grass and creeping red fescue following a crop treated with EDGE MICROACTIV Herbicide.
- The persistence of EDGE MICROACTIV Herbicide is influenced by soil moisture and the majority of breakdown occurs during the growing season. If drought or extended dry periods were present in the previous year, higher levels of EDGE MICROACTIV Herbicide may be present in the soil. To reduce the possibility of injury to rotational crops, seed shallow into a warm moist seedbed using recommended agronomic practices and seeding depths. As an additional safety precaution seeding rate may be increased slightly (10%).
- When seeding a rotational crop, use good quality certified seed. Seed shallow into a warm, moist firm seedbed using recommended agronomic practices which will promote rapid and even crop germination and emergence. **Avoid deep seeding, loose seedbeds and seeding into cold soils.**
- Each crop has a specific seeding depth requirement and seeding deeper than recommended can increase the potential risk of damage to the seedling. Refer to industry or government extension published documents which outline recommended seeding practices/depths for each crop.

Western Canada Only - Do not seed wheat as a rotational crop on land if trifluralin and/or ethalfluralin has been used at an oilseed/special crop/barley rate for two consecutive crops.

Western Canada Only - When conventional tillage and incorporation use practices are followed (see Conventional Tillage Systems section), do not seed rotational crops directly into standing stubble if either trifluralin or ethalfluralin were applied in the previous crop year. Follow practices that support a quality seed bed to enhance germination and crop emergence.

Weed Resistance

Populations of green foxtail tolerant to trifluralin have developed in a number of fields in Western Canada which have had a long history of repeated trifluralin use. EDGE MICROACTIV Herbicide or trifluralin containing products (i.e., Treflan™, Rival, and Fortress) will not control trifluralin tolerant green foxtail. To delay selection or reduce the spread of trifluralin tolerant green foxtail, avoid the use of these products repeatedly in the same field or use a separate herbicide application for control of trifluralin tolerant green foxtail. Consult Resistance Management Recommendations section of this label for further information.

WEEDS CONTROLLED

Grasses Controlled

barnyard grass
crab grass
fall panicum
giant foxtail
green foxtail*
Johnsongrass (seedling)
witch grass
yellow foxtail

Broadleaved Weeds Controlled

blueweed
chickweed
corn spurry
cow cockle
kochia
lamb's-quarters
prostrate pigweed
purslane
redroot pigweed
wild buckwheat

*EDGE MICROACTIV Herbicide will not control trifluralin resistant green foxtail. See specific recommendations in GENERAL USE PRECAUTIONS section of this label.

WEEDS SUPPRESSED*

cleavers
hemp-nettle
lady's-thumb
nightshade
Russian thistle
volunteer barley**
volunteer wheat
wild oats

*Suppression is a visual reduction in weed competition (reduced population and/or vigour) as compared to an untreated area. Competition by weeds listed as suppressed that remain in a crop will vary depending upon factors such as crop competition, the number of weed seeds in the soil and the time of weed emergence relative to crop emergence.

**Suppression of volunteer barley will be enhanced by cultural and management practices which promote germination of volunteer barley prior to seedbed preparation.

CROPS REGISTERED

Western Canada

canola	fababeans
field peas	soybeans
mustard (yellow only)	dry common beans (white or kidney)
sunflowers	dill
alfalfa establishment	caraway
coriander	safflower
	lentils (fall application only)

Eastern Canada

soybeans
dry common beans (white or kidney)
canola

Application Rates

For control of a wide spectrum of grasses and broadleaved weeds, follow the rate and application directions provided below. Apply prior to weed emergence. EDGE MICROACTIV Herbicide will not control weeds that are emerged at the time of treatment. Emerged weeds should be destroyed by cultivation or via a burn- down with glyphosate.

Western Canada: Spring Application - Recommended Rates of EDGE MICROACTIV Herbicide

Soil	% of Organic Matter	Rates per Hectare for Specific Soil Textures	
		Light	Medium-Heavy
		sand sandy loam	loam, silt loam, silt, sandy clay loam, silty clay loam, clay loam, silty clay, clay
brown/dark brown	(2-4% om)	8.5 kg/ha	8.5 kg/ha
black	(4-6% om)	8.5 kg/ha	11 kg/ha
deep black	(6-15% om)	11 kg/ha	11-14kg/ha

*For improved results on medium-heavy texture soils with 6 to 15% organic matter, the spring application rate may be increased to 14 kg/ha in fields with high populations of weeds.

Eastern Canada: Spring Application – Recommended Rates of EDGE MICROACTIV Herbicide

Rates per Hectare for Specific Soil Textures		
Light	Medium	Heavy
sand sandy loam	loam silt loam silt sandy clay loam	silty clay loam clay loam silty clay clay
7 kg/ha	8.5 kg/ha	11 kg/ha

Western Canada: Fall Application - Recommended Rates of EDGE MICROACTIV Herbicide

Soil	Organic Matter	Rates Per Hectare
		Medium-Heavy Textured Soils
		loam, silt loam, silt, sandy clay loam, silty clay loam, clay loam, silty clay, clay
brown/dark brown	(2-4% OM)	11
black	(4-6% OM)	14 kg/ha
deep black	(6-15% OM)	14 kg/ha

DIRECTIONS FOR USE – CONVENTIONAL TILLAGE SYSTEMS

FAILURE TO FOLLOW LABEL INSTRUCTION MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. USUAL OR STANDARD SEEDING PRACTICES MAY NOT SUFFICE. READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING.

Land Preparation

If existing weed growth is too heavy to allow uniform application and incorporation, destroy established weeds by cultivation or a pre-seed burn-down using glyphosate before application of EDGE MICROACTIV Herbicide,

Application Instructions

EDGE MICROACTIV Herbicide can be applied in the fall between September 1 and prior to freeze-up for weed control the following year, or it may be applied in the spring any time up to seeding.

Apply with a properly calibrated granular herbicide applicator that applies EDGE MICROACTIV Herbicide uniformly. Avoid concentration of the material in narrow bands. Calibrate the applicator according to manufacturer's directions and check frequently during application to be sure equipment is operating correctly.

Apply EDGE MICROACTIV Herbicide to a soil surface free of large clods and incorporate in the same operation if possible. **The first incorporation must be done within 24 hours of application.**

Incorporation

To incorporate, work EDGE MICROACTIV Herbicide into the soil in two different directions. An even uniform layer of EDGE MICROACTIV Herbicide treated soil is required to obtain optimum control of germinating weed seeds. Use a tandem disc, discer or field (vibra-shank type) cultivator set to work 8 to 10 cm deep for the first incorporation. A field cultivator (vibra-shank type) is defined as an implement with 3 or 4 rows of sweeps spaced at intervals of 20 cm or less and staggered so that no soil is left unturned. The second incorporation should be a discing or cultivation in a cross direction also at 8 to 10 cm deep. Operate disc implements at 7 to 10 km/hr and cultivators at 10 to 13 km/hr. Failure to operate implements at recommended speeds and depths may result in erratic weed control due to poor distribution of EDGE MICROACTIV Herbicide in the soil (deep tillage cultivator is not recommended).

NOTE: For more effective weed control, it is recommended that the second incorporation be delayed at least 3 days following the first incorporation. This allows time for greater release of EDGE MICROACTIV Herbicide onto soil particles and assures more uniform distribution in soils.

- EDGE MICROACTIV Herbicide should not be incorporated with a field cultivator when the soil is crusted, lumpy or too wet for good mixing action.
- Disc type implements are preferred on stubble to ensure a 10 cm depth of operation and good mixing action.
- Incorporation with implements set to cut less than 8 cm deep or more than 10 cm deep may result in erratic weed control or crop damage.
- Rod weeders, harrows, deep tillage cultivators, chisel plows, vibra-chisels or hoe drills will not properly incorporate EDGE MICROACTIV Herbicide.
- Single incorporation will not properly incorporate EDGE MICROACTIV Herbicide and may result in poor weed control and/or crop damage.

Tillage For Seedbed Preparation

Spring tillage following fall or spring application of EDGE MICROACTIV Herbicide should be done prior to seeding when the soil is warm enough to promote germination. Use a disc or field cultivator (vibra-shank) set to cut 5 to 8 cm deep. For optimum weed control in soils with heavy wild oat populations prework early in the spring with a shallow cultivation to promote weed seed germination, followed by a 5 to 8 cm deep cultivation prior to seeding to destroy existing green growth. Avoid transplanting weed seedlings; seed into a weed-free seedbed using accepted cultural practices. Avoid excessive compaction of the soil layer treated with EDGE MICROACTIV Herbicide. Any operation that results in a more shallow or compacted treated layer may allow weeds to emerge. This compaction may result from tractor wheel tracks, implement wheels, drill press

wheels or other field operations done after incorporation. Soils are more susceptible to compaction when they are moist.

FALL APPLICATION

EDGE MICROACTIV Herbicide can be applied in the fall between September 1 and prior to soil freeze-up for weed control the following year. On all deep black soils and heavy textured soils, early fall application is preferred to allow more time for even dispersion of EDGE MICROACTIV Herbicide in the treated soil layer. Apply fall rates and incorporate as above. **The initial incorporation must be done within 24 hours of application.** For best results, it is recommended to do both incorporations in the fall, followed by tillage (5 to 8 cm) in the spring prior to planting.

Following the two fall incorporations of EDGE MICROACTIV Herbicide, spring tillage should be done when the soil is warm enough to promote germination. Use a disc or vibra-shank cultivator set to cut 5 to 8 cm deep. Refer to Spring Application, Tillage for Seedbed Preparation section.

Following only one fall incorporation of EDGE MICROACTIV Herbicide, a second incorporation is required in the spring. Incorporate to an 8 to 10 cm depth at a cross angle to the fall incorporation. For optimum weed control, complete the spring incorporation as soon as there are good soil working conditions early in the spring. Separate tillage for seedbed preparation must still be done prior to seeding.

Special Instructions For Lentils (Fall Application Only)

1. EDGE MICROACTIV Herbicide application and at least one incorporation must be completed in the fall. Follow the Fall Application directions.
2. The seedbed should be shallowly tilled (5-8 cm) and packed just prior to seeding in the spring to ensure a firm seedbed and accurate depth of planting.
3. Seeding should be done with equipment that will place the seed uniformly and accurately. Do not seed more than 4 cm deep.
4. Use good quality seed and agronomic practices which will promote quick and even germination and emergence conditions. Avoid deep seeding, loose seedbeds and seeding into cold soils.
5. Refer to the use precaution statements regarding stresses that may lead to reduction in crop stand and vigour.

SPRING APPLICATION

EDGE MICROACTIV Herbicide can be applied and incorporated in the spring prior to seeding. Apply EDGE MICROACTIV Herbicide as soon as there are good soil working conditions early in the spring and **complete the first incorporation within 24 hours**, using a recommended implement operated 8 to 10 cm deep. The second incorporation (8 to 10 cm) must be delayed for a minimum of 3 days following the first incorporation. For best results, it is recommended to complete a separate tillage (5 to 8 cm) for seedbed preparation at least 3 days after the second incorporation.

DIRECTIONS FOR USE - DIRECT-SEEDING SYSTEMS

General

Direct-seeding is defined as seed placement into standing stubble (including chemical fallow) with minimum soil disturbance and maximum surface residue retention. EDGE MICROACTIV Herbicide for weed control in direct-seeding systems is intended for use on soils which have been in a low disturbance, direct-seeding system with < 30% soil disturbance for at least two consecutive years. In the year of seeding, a one pass, direct-seeding operation with minimal soil disturbance (<30%) is recommended.

EDGE MICROACTIV Herbicide applied to the soil surface provides long-lasting control of susceptible weeds within the top 2.5 cm of the soil surface. EDGE MICROACTIV in direct-seeding systems is adsorbed to the soil surface and will not control weeds that germinate from a deeper depth (>2.5 cm),

Land Preparation

Crop Residue Management: Straw and chaff residue management begins at harvest. Chopping, spreading and even distribution of straw and chaff residues is an effective method of straw management. Uneven distribution of crop residues may create plugging or hairpinning during the seeding operation. Poor and uneven crop emergence, cold wet soils, soil nutrient tie-up and delayed and uneven maturity may also be a result of inadequate trash management.

Preseeding (Burn Off) Weed Control

A preseeding burn-off herbicide treatment is required to eliminate weed competition prior to crop emergence. Refer to the appropriate product labels. EDGE MICROACTIV Herbicide will not control emerged weeds.

Application Instructions

EDGE MICROACTIV Herbicide for weed control in direct-seeding systems is intended for use on soils which have been in a low disturbance, direct-seeding system (i.e., <30% soil disturbance) such as a zero-tillage system, for at least two consecutive years prior to application.

Apply EDGE MICROACTIV Herbicide uniformly with a properly calibrated granular herbicide applicator. Avoid concentration of the herbicide in narrow bands. Calibrate the applicator according to manufacturer's directions and check frequently during application to ensure equipment is operating correctly. A single harrow operation assists in managing straw residue to ensure good herbicide soil contact. Avoid excessive soil disturbance.

Seeding Instructions

Use direct-seeding equipment seeding at a uniform depth to ensure seed-soil contact and rapid crop emergence. Minimum soil disturbance ensures a uniform herbicide layer at the soil surface.

FALL APPLICATION

EDGE MICROACTIV Herbicide for weed control in direct-seeding systems may be applied in the fall between October 1 and prior to soil freeze-up for weed control the following year. Apply EDGE MICROACTIV Herbicide at the fall rates listed above using a harrow operation to manage crop residue and ensure herbicide soil contact.

SPRING APPLICATION

EDGE MICROACTIV Herbicide for weed control in direct-seeding systems may be applied in the spring. Spring applications should be made at the spring application rates listed above and applied as early as field conditions permit and at least 10 days prior to seeding. The shallow harrow incorporation should be performed within 24 hours of application.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the use(s) described below were developed by persons other than Gowan Company, L.L.C. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Gowan Company, L.L.C. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Gowan Company, L.L.C. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described on this label.

FOR USE IN THE PRAIRIE PROVINCES AND THE PEACE RIVER REGION AND INTERIOR OF BRITISH COLUMBIA ONLY.

CHICKPEAS – FALL APPLICATION

For control and suppression of labelled weeds. Make one application per year using pre-plant incorporation. Refer to the label for weed species suppressed/controlled and incorporation directions.

Recommended Rates of EDGE MICROACTIV
11-14 kg/ha depending on soil type

REFER TO THE MAIN EDGE MICROACTIV HERBICIDE LABEL FOR ADDITIONAL DETAILS AND ROTATIONAL CROPPING RESTRICTIONS ON THE FULL LABEL BEFORE USING THIS PRODUCT.

CONTROL OF LABELLED WEEDS ON INDUSTRIAL HEMP

For the control of labelled weeds on industrial hemp, apply EDGE MICROACTIV Herbicide:

Western Canada: at the rate of 8.5 to 14 kilograms per hectare depending upon soil type.

Application timing: Fall between September 1 and prior to freeze up for weed control the following year, or in the spring any time up to seeding. Incorporation must be done within 24 hours of application. Controls susceptible weeds in the treated area only, by killing seedlings as they germinate.

Make only one application per year.

Eastern Canada (Spring application only): at the rate of 8.5 to 11 kilograms per hectare depending upon soil type

Application timing: In the spring any time up to seeding. Incorporation must be done within 24 hours of application. Controls susceptible weeds in the treated area only, by killing seedlings as they germinate.

Make only one application per year.

Hemp varieties may vary in their tolerance to herbicides, including to EDGE MICROACTIV Herbicide. Since not all hemp varieties have been tested for tolerance to EDGE MICROACTIV Herbicide, first use of this herbicide should be limited to a small area of each variety to confirm tolerance prior to adoption as a general field practice. Additionally, consult your seed supplier for information on the tolerance of specific varieties of hemp to EDGE MICROACTIV Herbicide.

REFER TO THE MAIN EDGE MICROACTIV GRANULAR HERBICIDE LABEL FOR ADDITIONAL DETAILS AND INSTRUCTIONS BEFORE USING THIS PRODUCT.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, EDGE MICROACTIV Herbicide is a Group 3 herbicide. Any weed population may contain or develop plants naturally resistant to EDGE MICROACTIV Herbicide and other Group 3 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of EDGE MICROACTIV Herbicide or other Group 3 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area issible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

- For further information or to report suspected resistance, contact Gowan Company at 1-800-883-1844

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

All other products listed are registered trademarks of their respective companies.

1 Identification

1.1 Product identifier

· **Trade name:** Edge® MicroActiv® Herbicide

· **CAS Number:**

Ethalfluralin (10.0 %): 55283-68-6

Registration number: PCP Registration No.: 32904

Group 3 Herbicide

· **Application of the substance / the mixture** Agricultural herbicide

1.3 Details of the supplier of the safety data sheet

· **Manufacturer/Supplier:**

Gowan Company

P.O. Box 5569

Yuma, Arizona 85366-5569

(800) 883-1844

· **Information department:** sds@gowanco.com

1.4 Emergency telephone number:

Chemtrec® Emergency Telephone 24 - Hours: (Spills, leak or fire) Inside U.S. & Canada: (800) 424-9300

Outside the U.S. & Canada: +011 (703) 527-3887

For medical emergency (Prosar®): (888) 478-0798

2 Hazard identification

2.1 Classification of the substance or mixture

· **Classification according to Regulation (EC) No 1272/2008**



GHS09 Environment

Aquatic Chronic 2

H411 Toxic to aquatic life with long lasting effects.



GHS07

Acute Toxicity (Oral) - Category 4 H302 Harmful if swallowed.

Eye Irritation - Category 2A H319 Causes serious eye irritation.

Aquatic Acute 2

H401 Toxic to aquatic life.

2.2 Label elements

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labeled according to the CLP regulation.

· **Hazard pictograms**



GHS07 GHS09

· **Signal word** Warning

· **Hazard statements**

H302 Harmful if swallowed.

H319 Causes serious eye irritation.

H401 Toxic to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

Safety Data Sheet

according to HPR, Schedule 1

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Trade name: Edge® MicroActiv® Herbicide

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Precautionary statements

- P264 Wash thoroughly after handling.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
 P330 Rinse mouth.
 P305+P351+P338 **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+P313 If eye irritation persists: Get medical advice/attention.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard description:

POTENTIAL SKIN SENSITIZER

HARMFUL IF SWALLOWED OR ABSORBED THROUGH THE SKIN

Classification system:

- **NFPA ratings (scale 0 - 4)**



Health = 2
 Fire = 1
 Reactivity = 0

HAZARD INDEX:

- 4 Severe Hazard
- 3 Serious Hazard
- 2 Moderate Hazard
- 1 Slight Hazard
- 0 Minimal Hazard

2.3 Other hazards

- PBT: Not applicable.
- vPvB: Not applicable.

3 Composition/Information on ingredients

3.2 Chemical characterization: Mixtures

- **Description:** Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

CAS: 55283-68-6	Ethalfluralin 	10.0% w/w
	Carcinogenicity – Category 2, H351; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Skin Irritation - Category 2, H315; Eye Irritation - Category 2A, H319; Skin Sensitizer - Category 1B, H317	

4 First aid measures

4.1 Description of first aid measures
General information:

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

You may also contact 1-888-478-0798 for emergency medical treatment information.

After inhalation:

- Move person to fresh air.
 - If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
 - Call poison control center or doctor for further treatment advice.

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Safety Data Sheet

according to HPR, Schedule 1

Printing date 05/28/2019

Reviewed on 05/28/2019

Trade name: Edge® MicroActiv® Herbicide

(Contd. of page 2)

- **After skin contact:**
 - Take off contaminated clothing.
 - Rinse skin immediately with plenty of water for 15-20 minutes.
 - Call a poison control center or doctor for treatment advice.
- **After eye contact:**
 - Hold eye open and rinse slowly and gently with water for 15-20 minutes.
 - Remove contact lenses, if present, after first 5 minutes, then continue rinsing eyes.
 - Call a poison control center or doctor for treatment advice.
- **After swallowing:**
 - Call a poison control center or doctor immediately for treatment advice.
 - Have person sip a glass of water if able to swallow.
 - Do not induce vomiting unless told to do so by a poison control center or doctor.
 - Do not give anything by mouth to an unconscious person.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**
Specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

5 Firefighting measures

- **5.1 Extinguishing media**
 - **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
This material does not burn. Fight fire for other material that is burning. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage
 - **Protective equipment:** Wear self-contained respiratory protective device.
 - **Additional information**
Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.

6 Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:** Pick up mechanically.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **7.1 Precautions for safe handling**
Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing dust or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation
 - **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.

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Trade name: Edge® MicroActiv® Herbicide

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· **7.2 Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.

· **Information about storage in one common storage facility:** Store away from foodstuffs.

· **Further information about storage conditions:**

Store in areas not exposed to high temperatures or prolonged, direct sunlight. Also, do not let product remain standing in applicators under these conditions.

· **7.3 Specific end use(s)** No further relevant information available.

8 Exposure controls/ Personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **8.1 Control parameters**

· **Components with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Additional information:** The lists that were valid during the creation were used as basis.

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Change contaminated clothing daily and wash before reuse. Rinse gloves with water before removal and wash hands thoroughly before eating, drinking or smoking.

· **Breathing equipment:**

NIOSH approved organic- vapour-removing cartridge with a prefliter approved for pesticides or a NIOSH approved canister approved for pesticide while loading.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Material of gloves** Chemical-resistant gloves.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Safety glasses

· **Body protection:**

Wear coveralls over a long-sleeved shirt and long pants, chemical resistant gloves and protective eyewear during all activities

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Printing date 05/28/2019

Reviewed on 05/28/2019

Trade name: Edge® MicroActiv® Herbicide

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9 Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

- Form: Granulate
- Color: Brown-reddish
- Odor: Characteristic
- Odor threshold: Not determined.

· pH-value at 20 °C (68 °F): 4.19

· Change in condition

- Melting point/Melting range: Undetermined.
- Boiling point/Boiling range: Undetermined.

· Flash point: 750 °C (1,382 °F)

· Flammability (solid, gaseous): Not determined.

· Decomposition temperature: Not determined.

· Auto igniting: Product is not self-igniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

- Lower: Not determined.
- Upper: Not determined.

· Vapor pressure: Not applicable.

· Density at 20 °C (68 °F): 36.6 lbs/ft³

- Relative density: Not determined.
- Vapor density: Not applicable.
- Evaporation rate: Not applicable.

· Solubility in / Miscibility with

· Water: Dispersible.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

- Dynamic: Not applicable.
- Kinematic: Not applicable.

· 9.2 Other information: No further relevant information available.

10 Stability and reactivity

· 10.1 Reactivity: No further relevant information available.

· 10.2 Chemical stability

· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· 10.3 Possibility of hazardous reactions: No dangerous reactions known.

· 10.4 Conditions to avoid: Excessive heat.

· 10.5 Incompatible materials: No further relevant information available.

· 10.6 Hazardous decomposition products: No dangerous decomposition products known.

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(Contd. on page 6)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 05/28/2019

Reviewed on 05/28/2019

Trade name: Edge® MicroActiv® Herbicide

(Contd. of page 5)

11 Toxicological information

· 11.1 Information on toxicological effects

· Acute toxicity:

Harmful if swallowed.

· Primary irritant effect:

· on the skin:

Prolonged contact may cause skin irritation with local redness.

May cause drying and flaking of the skin.

May cause thickening or hardening of the skin.

Effects may be delayed.

· on the eye:

Causes serious eye irritation.

May cause slight eye irritation.

May cause slight corneal injury.

Solid or dust may cause irritation or corneal injury due to mechanical action.

· **Sensitization:** Based on available data, the classification criteria are not met.

· Additional toxicological information:

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

None of the ingredients are listed.

· NTP (National Toxicology Program)

None of the ingredients are listed.

12 Ecological information

· 12.1 Toxicity

Ethalfluralin

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, *Lepomis macrochirus* (Bluegill sunfish), static test, 96 Hour, 0.054 - 0.102 mg/l, OECD Test Guideline 203 or Equivalent

LC50, *Oncorhynchus mykiss* (rainbow trout), flow-through test, 96 Hour, 0.136 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, eastern oyster (*Crassostrea virginica*), flow-through test, 96 Hour, 0.100 - 0.172 mg/l, OECD Test Guideline 202 or Equivalent

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, > 0.365 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), static test, 7 d, Growth rate inhibition, 0.004 - 0.0091 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to fish

NOEC, *Oncorhynchus mykiss* (rainbow trout), 50 d, 0.0004 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (Water flea), 21 d, 0.0237 mg/l

(Contd. on page 7)

Safety Data Sheet

according to HPR, Schedule 1

Printing date 05/28/2019

Reviewed on 05/28/2019

Trade name: Edge® MicroActiv® Herbicide

(Contd. of page 6)

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50, *Colinus virginianus* (Bobwhite quail), 14 d, > 2000mg/kg bodyweight.

dietary LC50, *Colinus virginianus* (Bobwhite quail), > 5000mg/kg diet.

oral LD50, *Apis mellifera* (bees), > 109.9micrograms/bee

contact LD50, *Apis mellifera* (bees), 46 - 100micrograms/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d, > 1,000 mg/kg

· **Aquatic toxicity:** No further relevant information available.

· 12.2 Persistence and degradability

Ethalfuralin

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

Biodegradation: 2 - 15 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

Stability in Water (1/2-life)

Hydrolysis, pH 3, Stable

Hydrolysis, pH 6, Stable

Hydrolysis, pH 9, Stable

Photodegradation

Atmospheric half-life: 1.8 Hour

Method: Estimated.

· 12.3 Bioaccumulative potential

Ethalfuralin

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 5.11 Measured

Bioconcentration factor (BCF): 1,330 Fish. Measured

· 12.4 Mobility in soil

Ethalfuralin

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient(Koc): 4100 - 8400 Measured

· Additional ecological information:

· General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· 12.5 Results of PBT and vPvB assessment

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· 12.6 Other adverse effects No further relevant information available.

13 Disposal considerations

· 13.1 Waste treatment methods

· Recommendation:

Disposal of this material must be in accordance with your local or area regulatory authorities.

(Contd. on page 8)

CA/EN

Safety Data Sheet

according to HPR, Schedule 1

Printing date 05/28/2019

Reviewed on 05/28/2019

Trade name: **Edge® MicroActiv® Herbicide**

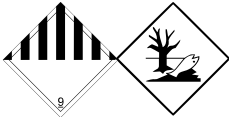
(Contd. of page 7)

· **Uncleaned packagings:**· **Recommendation:**

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1.- Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2.- Make the empty, rinsed container unsuitable for further use.

14 Transport information

<ul style="list-style-type: none"> · 14.1 UN-Number · DOT/TDG · ADR · ADN, IATA · IMDG 	<p>Not Regulated Marine Pollutants Exemption (TDG 1.45.1) Void UN3077</p>
<ul style="list-style-type: none"> · 14.2 UN proper shipping name · DOT/TDG, ADN, IATA · ADR · IMDG 	<p>Void Marine Pollutants Exemption (TDG 1.45.1)- ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Ethalfuralin technical), MARINE POLLUTANT</p>
<ul style="list-style-type: none"> · 14.3 Transport hazard class(es) · 14.3 DOT, ADR, ADN, IATA · Class 	<p>Void</p>
<ul style="list-style-type: none"> · IMDG <div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> · Class · Label 	<p>9 Miscellaneous dangerous substances and articles 9</p>
<ul style="list-style-type: none"> · 14.4 Packing group · DOT/TDG, ADR, IATA · IMDG 	<p>Void III</p>
<ul style="list-style-type: none"> · 14.5 Environmental hazards: · Marine pollutant: 	<p>Product contains environmentally hazardous substances: Ethalfuralin Symbol (fish and tree)</p>
<ul style="list-style-type: none"> · 14.6 Special precautions for user · EMS Number: · Stowage Category · Stowage Code 	<p>Not applicable F-A,S-F A SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.</p>
<ul style="list-style-type: none"> · 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	<p>Not applicable</p>

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Safety Data Sheet

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Printing date 05/28/2019

Reviewed on 05/28/2019

Trade name: **Edge® MicroActiv® Herbicide**

(Contd. of page 8)

· **Transport/Additional information:**· **IMDG**· **Limited quantities (LQ)**

5 kg

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 1000 g

· **UN "Model Regulation":**

Canada TDG

Marine Pollutants Exemption (TDG 1.45.1)

15 Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**· **SARA Title III**· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act):**

CAS: 55283-68-6 Ethalfluralin

CAS: 61790-53-2 Diatomaceous earth (Silica-Amorphous)

CAS: 14808-60-7 Quartz (SiO₂)· **Canadian substance listings:**· **Canadian Domestic Substances List (DSL)**

None of the ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

None of the ingredients are listed.

· **National regulations:**· **Additional classification according to Decree on Hazardous Materials:**

Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label.

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

(Contd. on page 10)

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Safety Data Sheet
according to HPR, Schedule 1

Printing date 05/28/2019

Reviewed on 05/28/2019

Trade name: Edge® MicroActiv® Herbicide

(Contd. of page 9)

*H351 Suspected of causing cancer.**H400 Very toxic to aquatic life.**H410 Very toxic to aquatic life with long lasting effects.*

- **Department issuing SDS:** Supply Chain
- **Contact:** sds@gowanco.com
 - **Date of the latest revision of the safety data sheet** 05/28/2019 / -
 - **Abbreviations and acronyms:**
 - IMDG: International Maritime Code for Dangerous Goods
 - DOT: US Department of Transportation
 - IATA: International Air Transport Association
 - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 - EINECS: European Inventory of Existing Commercial Chemical Substances
 - ELINCS: European List of Notified Chemical Substances
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)
 - NFPA: National Fire Protection Association (USA)
 - PBT: Persistent, Bioaccumulative and Toxic
 - vPvB: very Persistent and very Bioaccumulative
 - **Sources** Edge® is a registered trademark of Gowan Company, L.L.C.
 - *** Data compared to the previous version altered.**

CA/EN

2016-2512
2016-07-26

(Container)

Edge™ Granular Herbicide

GROUP	3	HERBICIDE
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A selective granular herbicide for preplant weed control in oilseed and pulse crops.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

GUARANTEE: ethalfluralin 5%
granular

REGISTRATION NO. 20980 PEST CONTROL PRODUCTS ACT

POTENTIAL SKIN SENSITIZER

CAUTION: FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING.

NET CONTENTS: 25 kg

Gowan Company

P.O. Box 5569

Yuma, AZ 85366-5569

Product Information: 1-800-883-1844

PRECAUTIONS

POTENTIAL SKIN SENSITIZER
HARMFUL IF SWALLOWED OR ABSORBED THROUGH THE SKIN
AVOID CONTACT WITH SKIN, EYES AND CLOTHING
AVOID BREATHING DUST
KEEP OUT OF REACH OF CHILDREN
DO NOT APPLY BY AIR

Occupational exposure to this product may be hazardous to your health. When handling and applying pesticides, farm workers are subject to potential dermal (skin) exposure. Occupational exposure studies have shown that with the proper use of protective clothing, much of the potential exposure to Edge Granular Herbicide can be reduced.

Wear coveralls over a long-sleeved shirt and long pants, chemical resistant gloves and protective eyewear during all activities plus a respirator with a NIOSH approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH approved canister approved for pesticide while loading. In addition, when handling more than 110 kg a.i./day (78 ha at the maximum rate of 1.4 kg a.i./ha), wear a respirator as specified above while applying, or use a closed cab while applying. Change contaminated clothing daily and wash before reuse. Rinse gloves with water before removal and wash hands thoroughly before eating, drinking or smoking.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feed, drugs or clothing.

ENVIRONMENTAL HAZARD

Toxic to aquatic organisms. To reduce runoff from treated areas into aquatic habitats, DO NOT apply to areas with a moderate to steep slope, compacted soil, or clay. DO NOT apply when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the Edge Granular of the water body.

STORAGE

Store in areas not exposed to high temperatures or prolonged, direct sunlight. Also, do not let product remain standing in applicators under these conditions. After filling the granular applicator, close the lid immediately to avoid prolonged exposure to direct sunlight.

DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

(Booklet)



Edge™ Granular Herbicide

GROUP	3	HERBICIDE
-------	---	-----------

A selective granular herbicide for preplant weed control in oilseed and pulse crops.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

GUARANTEE: ethafluralin 5%
granular

REGISTRATION NO. 20980 PEST CONTROL PRODUCTS ACT

POTENTIAL SKIN SENSITIZER

CAUTION: FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING.

NET CONTENTS: 25 kg, 544 kg bulk bag

Gowan Company

P.O. Box 5569

Yuma, AZ 85366-5569

Product Information: 1-800-883-1844

PRECAUTIONS

POTENTIAL SKIN SENSITIZER

HARMFUL IF SWALLOWED OR ABSORBED THROUGH THE SKIN

AVOID CONTACT WITH SKIN, EYES AND CLOTHING

AVOID BREATHING DUST

KEEP OUT OF REACH OF CHILDREN

DO NOT APPLY BY AIR

Occupational exposure to this product may be hazardous to your health. When handling and applying pesticides, farm workers are subject to potential dermal (skin) exposure. Occupational exposure studies have shown that with the proper use of protective clothing, much of the potential exposure to Edge Granular Herbicide can be reduced.

Wear coveralls over a long-sleeved shirt and long pants, chemical resistant gloves and protective eyewear during all activities plus a respirator with a NIOSH approved organic-vapour-removing cartridge with a prefilter approved for pesticides or a NIOSH approved canister approved for pesticide while loading. In addition, when handling more than 110 kg a.i./day (78 ha at the maximum rate of 1.4 kg a.i./ha), wear a respirator as specified above while applying, or use a closed cab while applying. Change contaminated clothing daily and wash before reuse. Rinse gloves with water before removal and wash hands thoroughly before eating, drinking or smoking.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

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If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feed, drugs or clothing.

ENVIRONMENTAL HAZARD

Toxic to aquatic organisms. To reduce runoff from treated areas into aquatic habitats, DO NOT apply to areas with a moderate to steep slope, compacted soil, or clay. DO NOT apply when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the Edge Granular of the water body.

STORAGE

Store in areas not exposed to high temperatures or prolonged, direct sunlight. Also, do not let product remain standing in applicators under these conditions. After filling the granular applicator, close the lid immediately to avoid prolonged exposure to direct sunlight.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Edge Granular Herbicide is a preplant herbicide to provide long-lasting control of volunteer cereal, annual grass and broadleaved weeds. Edge Granular Herbicide controls susceptible weeds in the treated layer only, by killing seedlings as they germinate. It does not control established weeds.

GENERAL USE PRECAUTIONS

Application

- Do not apply Edge Granular Herbicide to peat or muck soils, or soils which contain more than 15% organic matter.
- Do not apply to fields spread with manure within the last 12 months. After this period, ensure the manure has been thoroughly disintegrated and mixed into the soil to a depth of 10 to 15 cm.
- If the swath or stubble is removed by burning, cultivate once to remove the charcoal layer from the soil surface prior to Edge Granular Herbicide application.
- Application to soils subject to prolonged periods of flooding may result in accelerated herbicide breakdown. Additionally, application to wet soils or soils in poor working condition could result in reduced weed control. See Land Preparation section of this label for further precautions.
- Do not apply to soils with less than 2% organic matter. Application to eroded knolls or grey-wooded soils with highly variable texture or organic matter may result in reduced crop stand, delayed development or reduced yields in either the treated crop or rotational crop.
- Apply uniformly at the recommended rates. Over-application caused by overlapping, improper calibration or uneven application may reduce crop stands in the treated crop or rotational crop.
- **DO NOT APPLY BY AIR.**

To avoid potential injury to future wheat rotational crops, to minimize the potential for carry over and accumulation of soil residues and to reduce the selection and spread of trifluralin resistant green foxtail, it is recommended that growers avoid applying trifluralin and/or ethalfluralin on the same land for two consecutive years.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Crop Year

- Applied according to directions, Edge Granular Herbicide will not harm the treated crops. However, seedling disease, deep planting, excessive moisture, high salt concentration, soil compaction or drought may weaken crop seedlings and increase the risk of injury, which may result in delayed crop development or reduced yields.
- To reduce the possibility of injury to the treated crop, use good quality certified seed. Seed shallow into a warm, moist firm seedbed using recommended agronomic practices which will promote rapid and even crop germination and emergence.
- CAUTION: Do not graze the treated crops or cut for hay. There are not sufficient data available to support such use.

Rotational Crop

- Applied according to label directions, Edge Granular Herbicide will not harm rotational crops. However, seedling disease, cold weather, deep planting, excessive moisture, high salt concentrations, soil compaction or drought may weaken seedlings and increase the risk of injury, which may result in delayed crop development or reduced yields.
- Do not seed , oats, sugar beets and small-seeded grasses such as timothy, canaryseed, grass and creeping red fescue following a crop treated with Edge Granular Herbicide.
- The persistence of Edge Granular Herbicide is influenced by soil moisture and the majority of breakdown occurs during the growing season. If drought or extended dry periods were present in the previous year, higher levels of Edge Granular Herbicide may be present in the soil. To reduce the possibility of injury to rotational crops, seed shallow into a warm moist seedbed using recommended agronomic practices and seeding depths. As an additional safety precaution seeding rate may be increased slightly (10%).
- When seeding a rotational crop, use good quality certified seed. Seed shallow into a warm, moist firm seedbed using recommended agronomic practices which will promote rapid and even crop germination and emergence. **Avoid deep seeding, loose seedbeds and seeding into cold soils.**
- Each crop has a specific seeding depth requirement and seeding deeper than recommended can increase the potential risk of damage to the seedling. Refer to industry or government extension published documents which outline recommended seeding practices/depths for each crop.

Western Canada Only - Do not seed wheat as a rotational crop on land if trifluralin and/or ethalfluralin has been used at an oilseed/special crop/barley rate for two consecutive crops.

Western Canada Only - When conventional tillage and incorporation use practices are followed (see Conventional Tillage Systems section), do not seed rotational crops directly into standing stubble if either trifluralin or ethalfluralin were applied in the previous crop year. Follow practices that support a quality seed bed to enhance germination and crop emergence

Weed Resistance

Populations of green foxtail tolerant to trifluralin have developed in a number of fields in Western Canada which have had a long history of repeated trifluralin use. Edge Granular Herbicide or trifluralin containing products (i.e., Treflan™, Bonzana or Rival, and Fortress) will not control trifluralin tolerant green foxtail. To delay selection or reduce the spread of trifluralin tolerant green foxtail, avoid the use of these products repeatedly in the same field or use a separate herbicide application for control of trifluralin tolerant green foxtail. Consult Resistance Management Recommendations section of this label for further information.

WEEDS CONTROLLED

Grasses Controlled

barnyard grass
crab grass
fall panicum
giant foxtail
green foxtail*
Johnsongrass (seedling)
witch grass
yellow foxtail

Broadleaved Weeds Controlled

blueweed
chickweed
corn spurry
cow cockle
kochia
lamb's-quarters
prostrate pigweed
purslane
redroot pigweed
wild buckwheat

*Edge Granular Herbicide will not control trifluralin resistant green foxtail. See specific recommendations in GENERAL USE PRECAUTIONS section of this label.

WEEDS SUPPRESSED*

cleavers hemp-
nettle lady's-thumb
nightshade
Russian thistle
volunteer barley**
volunteer wheat
wild oats

*Suppression is a visual reduction in weed competition (reduced population and/or vigour) as compared to an untreated area. Competition by weeds listed as suppressed that remain in a crop will vary depending upon factors such as crop competition, the number of weed seeds in the soil and the time of weed emergence relative to crop emergence.

**Suppression of volunteer barley will be enhanced by cultural and management practices which promote germination of volunteer barley prior to seedbed preparation.

CROPS REGISTERED

Western Canada

canola	fababeans
field peas	soybeans
mustard (yellow only)	dry common beans (white or kidney)
sunflowers	dill
alfalfa establishment	caraway
coriander	safflower
	lentils (fall application only)

Eastern Canada

soybeans
dry common beans (white or kidney)
canola

Application Rates

For control of a wide spectrum of grasses and broadleaved weeds, follow the rate and application directions provided below. Apply prior to weed emergence. Edge Granular Herbicide will not control weeds that are emerged at the time of treatment. Emerged weeds should be destroyed by cultivation or via a burn-down with glyphosate.

Western Canada: Spring Application - Recommended Rates of Edge Granular Herbicide

Soil	% of Organic Matter	Rates per Hectare for Specific Soil Textures	
		Light	Medium-Heavy
		sand sandy loam	loam, silt loam, silt, sandy clay loam, silty clay loam, clay loam, silty clay, clay
brown/dark brown	(2-4% om)	17 kg/ha	17 kg/ha
black	(4-6% om)	17 kg/ha	22 kg/ha
deep black	(6-15% om)	22 kg/ha	22-28 kg/ha

*For improved results on medium-heavy texture soils with 6 to 15% organic matter, the spring application rate may be increased to 28 kg/ha in fields with high populations of weeds.

Eastern Canada: Spring Application – Recommended Rates of Edge Granular Herbicide

Rates per Hectare for Specific Soil Textures		
Light	Medium	Heavy
sand sandy loam	loam silt loam silt sandy clay loam	silty clay loam clay loam silty clay clay
14 kg/ha	17 kg/ha	22 kg/ha

Western Canada: Fall Application - Recommended Rates of Edge Granular Herbicide

Soil	Organic Matter	Rates Per Hectare
		Medium-Heavy Textured Soils
		loam, silt loam, silt, sandy clay loam, silty clay loam, clay loam, silty clay, clay
brown/dark brown	(2-4% OM)	22 kg/ha
black	(4-6% OM)	28 kg/ha
deep black	(6-15% OM)	28 kg/ha

DIRECTIONS FOR USE – CONVENTIONAL TILLAGE SYSTEMS

FAILURE TO FOLLOW LABEL INSTRUCTION MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. USUAL OR STANDARD SEEDING PRACTICES MAY NOT SUFFICE. READ ALL DIRECTIONS CAREFULLY BEFORE APPLYING.

Land Preparation

If existing weed growth is too heavy to allow uniform application and incorporation, destroy established weeds by cultivation or a pre-seed burn-down using glyphosate before application of Edge Granular Herbicide,

Application Instructions

Edge Granular Herbicide can be applied in the fall between September 1 and prior to freeze-up for weed control the following year, or it may be applied in the spring any time up to seeding.

Apply with a properly calibrated granular herbicide applicator that applies Edge Granular Herbicide uniformly. Avoid concentration of the material in narrow bands. Calibrate the applicator according to manufacturer's directions and check frequently during application to be sure equipment is operating correctly.

Apply Edge Granular Herbicide to a soil surface free of large clods and incorporate in the same operation if possible. **The first incorporation must be done within 24 hours of application.**

Incorporation

To incorporate, work Edge Granular Herbicide into the soil in two different directions. An even uniform layer of Edge Granular Herbicide treated soil is required to obtain optimum control of germinating weed seeds. Use a tandem disc, discer or field (vibra-shank type) cultivator set to work 8 to 10 cm deep for the first incorporation. A field cultivator (vibra-shank type) is defined as an implement with 3 or 4 rows of sweeps spaced at intervals of 20 cm or less and staggered so that no soil is left unturned. The second incorporation should be a disking or cultivation in a cross direction also at 8 to 10 cm deep. Operate disc implements at 7 to 10 km/hr and cultivators at 10 to 13 km/hr. Failure to operate implements at recommended speeds and depths may result in erratic weed control due to poor distribution of Edge Granular Herbicide in the soil (deep tillage cultivator is not recommended).

NOTE: For more effective weed control, it is recommended that the second incorporation be delayed at least 3 days following the first incorporation. This allows time for greater release of Edge Granular Herbicide onto soil particles and assures more uniform distribution in soils.

- Edge Granular Herbicide should not be incorporated with a field cultivator when the soil is crusted, lumpy or too wet for good mixing action.
- Disc type implements are preferred on stubble to ensure a 10 cm depth of operation and good mixing action.
- Incorporation with implements set to cut less than 8 cm deep or more than 10 cm deep may result in erratic weed control or crop damage.
- Rod weeders, harrows, deep tillage cultivators, chisel plows, vibra-chisels or hoe drills will not properly incorporate Edge Granular Herbicide.
- Single incorporation will not properly incorporate Edge Granular Herbicide and may result in poor weed control and/or crop damage.

Tillage For Seedbed Preparation

Spring tillage following fall or spring application of Edge Granular Herbicide should be done prior to seeding when the soil is warm enough to promote germination. Use a disc or field cultivator (vibra-shank) set to cut 5 to 8 cm deep. For optimum weed control in soils with heavy wild oat populations prework early in the spring with a shallow cultivation to promote weed seed germination, followed by a 5 to 8 cm deep cultivation prior to seeding to destroy existing green growth. Avoid transplanting weed seedlings; seed into a weed- free seedbed using accepted cultural practices. Avoid excessive compaction of the soil layer treated with Edge Granular Herbicide. Any operation that results in a more shallow or compacted treated layer may allow weeds to emerge. This compaction may result from tractor wheel tracks, implement wheels, drill press

wheels or other field operations done after incorporation. Soils are more susceptible to compaction when they are moist.

FALL APPLICATION

Edge Granular Herbicide can be applied in the fall between September 1 and prior to soil freeze-up for weed control the following year. On all deep black soils and heavy textured soils, early fall application is preferred to allow more time for even dispersion of Edge Granular Herbicide in the treated soil layer. Apply fall rates and incorporate as above. **The initial incorporation must be done within 24 hours of application.** For best results, it is recommended to do both incorporations in the fall, followed by tillage (5 to 8 cm) in the spring prior to planting.

Following the two fall incorporations of Edge Granular Herbicide, spring tillage should be done when the soil is warm enough to promote germination. Use a disc or vibra-shank cultivator set to cut 5 to 8 cm deep. Refer to Spring Application, Tillage for Seedbed Preparation section.

Following only one fall incorporation of Edge Granular Herbicide, a second incorporation is required in the spring. Incorporate to an 8 to 10 cm depth at a cross angle to the fall incorporation. For optimum weed control, complete the spring incorporation as soon as there are good soil working conditions early in the spring. Separate tillage for seedbed preparation must still be done prior to seeding.

Special Instructions For Lentils (Fall Application Only)

1. Edge Granular Herbicide application and at least one incorporation must be completed in the fall. Follow the Fall Application directions.
2. The seedbed should be shallowly tilled (5-8 cm) and packed just prior to seeding in the spring to ensure a firm seedbed and accurate depth of planting.
3. Seeding should be done with equipment that will place the seed uniformly and accurately. Do not seed more than 4 cm deep.
4. Use good quality seed and agronomic practices which will promote quick and even germination and emergence conditions. Avoid deep seeding, loose seedbeds and seeding into cold soils.
5. Refer to the use precaution statements regarding stresses that may lead to reduction in crop stand and vigour.

SPRING APPLICATION

Edge Granular Herbicide can be applied and incorporated in the spring prior to seeding. Apply Edge Granular Herbicide as soon as there are good soil working conditions early in the spring and **complete the first incorporation within 24 hours**, using a recommended implement operated 8 to 10 cm deep. The second incorporation (8 to 10 cm) must be delayed for a minimum of 3 days following the first incorporation. For best results, it is recommended to complete a separate tillage (5 to 8 cm) for seedbed preparation at least 3 days after the second incorporation.

DIRECTIONS FOR USE - DIRECT-SEEDING SYSTEMS

General

Direct-seeding is defined as seed placement into standing stubble (including chemical fallow) with minimum soil disturbance and maximum surface residue retention. Edge Granular Herbicide for weed control in direct-seeding systems is intended for use on soils which have been in a low disturbance, direct-seeding system with < 30% soil disturbance for at least two consecutive years. In the year of seeding, a one pass, direct-seeding operation with minimal soil disturbance (<30%) is recommended.

Edge Granular Herbicide applied to the soil surface provides long-lasting control of susceptible weeds within the top 2.5 cm of the soil surface. Edge Granular in direct-seeding systems is adsorbed to the soil surface and will not control weeds that germinate from a deeper depth (>2.5 cm),

Land Preparation

Crop Residue Management: Straw and chaff residue management begins at harvest. Chopping, spreading and even distribution of straw and chaff residues is an effective method of straw management. Uneven distribution of crop residues may create plugging or hairpinning during the seeding operation. Poor and uneven crop emergence, cold wet soils, soil nutrient tie-up and delayed and uneven maturity may also be a result of inadequate trash management.

Preseeding (Burn Off) Weed Control

A preseeding burn-off herbicide treatment is required to eliminate weed competition prior to crop emergence. Refer to the appropriate product labels. Edge Granular Herbicide will not control emerged weeds.

Application Instructions

Edge Granular Herbicide for weed control in direct-seeding systems is intended for use on soils which have been in a low disturbance, direct-seeding system (i.e., <30% soil disturbance) such as a zero-tillage system, for at least two consecutive years prior to application.

Apply Edge Granular Herbicide uniformly with a properly calibrated granular herbicide applicator. Avoid concentration of the herbicide in narrow bands. Calibrate the applicator according to manufacturer's directions and check frequently during application to ensure equipment is operating correctly. A single harrow operation assists in managing straw residue to ensure good herbicide soil contact. Avoid excessive soil disturbance.

Seeding Instructions

Use direct-seeding equipment seeding at a uniform depth to ensure seed-soil contact and rapid crop emergence. Minimum soil disturbance ensures a uniform herbicide layer at the soil surface.

FALL APPLICATION

Edge Granular Herbicide for weed control in direct-seeding systems may be applied in the fall between October 1 and prior to soil freeze-up for weed control the following year. Apply Edge Granular Herbicide at the fall rates listed above using a harrow operation to manage crop residue and ensure herbicide soil contact.

SPRING APPLICATION

Edge Granular Herbicide for weed control in direct-seeding systems may be applied in the spring. Spring applications should be made at the spring application rates listed above and applied as early as field conditions permit and at least 10 days prior to seeding. The shallow harrow incorporation should be performed within 24 hours of application.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Edge Granular Herbicide is a Group 3 herbicide. Any weed population may contain or develop plants naturally resistant to Edge Granular Herbicide and other Group 3 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Edge Granular Herbicide or other Group 3 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area issible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Gowan Company (1-800-883-1844).

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

All other products listed are registered trademarks of their respective companies.

[PRINCIPAL DISPLAY PANEL]

GROUP	2	HERBICIDE
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EXPRESS® SG HERBICIDE
SOLUBLE GRANULES

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND THE PEACE RIVER REGION OF
BRITISH COLUMBIA ONLY

COMMERCIAL

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

NET CONTENTS: 120 grams – 20 Kg

REGISTRATION NO.: 28262 *PEST CONTROL PRODUCTS ACT*

GUARANTEE: Tribenuron-methyl 50%

WARNING, CONTAINS THE ALLERGENS SULFITES AND MILK

WARNING – EYE IRRITANT
POTENTIAL SKIN SENSITIZER

E. I. du Pont Canada Company
Agricultural Products
Box 2300, Streetsville,
Mississauga, Ontario
L5M 2J4
1-800-667-3925

PRECAUTIONS: WARNING - EYE IRRITANT.
 POTENTIAL SKIN SENSITIZER.
 DO NOT APPLY BY AIR.
 KEEP OUT OF REACH OF CHILDREN.
 MAY BE HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH
 SKIN.
 AVOID BREATHING SPRAY MIST. USE WITH ADEQUATE VENTILATION.
 AVOID CONTACT WITH SKIN, EYES AND CLOTHING.
 DO NOT CONTAMINATE ANY BODY OF WATER.
 WEAR LONG-SLEEVED SHIRT, LONG PANTS, SOCKS AND CHEMICAL-
 RESISTANT GLOVES AND FOOTWEAR DURING MIXING, LOADING,
 APPLICATION, CLEAN-UP AND REPAIR. IN ADDITION, WEAR GOGGLES
 OR FACE SHIELD DURING MIXING AND LOADING. CHEMICAL-RESISTANT
 GLOVES ARE NOT REQUIRED WHILE OPERATING GROUNDBOOM
 SPRAYERS.
 DO NOT ENTER OR ALLOW WORKER ENTRY INTO TREATED AREAS FOR
 12 HOURS FOLLOWING APPLICATION.
 WHEN APPLIED AS A TANK-MIX COMBINATION, READ AND OBSERVE ALL
 LABEL DIRECTIONS, INCLUDING RATES, RESTRICTIONS, AND GRAZING
 LIMITATIONS FOR EACH PRODUCT USED IN THE TANK-MIX. FOLLOW THE
 MORE STRINGENT LABEL PRECAUTIONARY MEASURES FOR MIXING,
 LOADING AND APPLYING STATED ON BOTH PRODUCT LABELS.
 MAY IRRITATE SKIN AND EYES. WHEN USING, DO NOT EAT, DRINK OR
 SMOKE.
 WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING.
 REMOVE CONTAMINATED CLOTHING IMMEDIATELY AFTER USE.

FIRST AID:

IF IN EYES:

Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF SWALLOWED:

Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

For medical emergencies call 1-800-441-3637 (24 hours).

TOXICOLOGICAL INFORMATION: Treat symptomatically.

STORAGE AND DISPOSAL**STORAGE:**

Store product in original container in a secure, dry area, away from fertilizer, seed, food or feed. Not for use or storage in or around the home. Keep container tightly closed.

DISPOSAL:

If this is a non-reusable container:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements

If this is a refillable container:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

If this is a returnable container:

Do not reuse this container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For all package types:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *PEST CONTROL PRODUCTS ACT* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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[Directions for Use brochure]

GROUP	2	HERBICIDE
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EXPRESS® SG HERBICIDE

SOLUBLE GRANULES

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND THE PEACE RIVER REGION OF
BRITISH COLUMBIA ONLY

COMMERCIAL

READ THE LABEL AND THIS BOOKLET BEFORE USING

REGISTRATION NO.: 28262 *PEST CONTROL PRODUCTS ACT*

GUARANTEE: Tribenuron-methyl 50%

WARNING, CONTAINS THE ALLERGENS SULFITES AND MILK

WARNING – EYE IRRITANT
POTENTIAL SKIN SENSITIZER

E. I. du Pont Canada Company
Agricultural Products
Box 2300, Streetsville,
Mississauga, Ontario
L5M 2J4
1-800-667-3925

PRECAUTIONS: WARNING - EYE IRRITANT.
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 SKIN. AVOID BREATHING SPRAY MIST. USE WITH ADEQUATE
 VENTILATION.
 AVOID CONTACT WITH SKIN, EYES AND CLOTHING.
 DO NOT CONTAMINATE ANY BODY OF WATER.
 WEAR LONG-SLEEVED SHIRT, LONG PANTS, SOCKS AND CHEMICAL-
 RESISTANT GLOVES AND FOOTWEAR DURING MIXING, LOADING,
 APPLICATION, CLEAN-UP AND REPAIR. IN ADDITION, WEAR GOGGLES
 OR FACE SHIELD DURING MIXING AND LOADING. CHEMICAL-RESISTANT
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Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

For medical emergencies call 1-800-441-3637 (24 hours).

TOXICOLOGICAL INFORMATION: Treat symptomatically.

ENVIRONMENTAL HAZARDS:

- TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

IMPORTANT INFORMATION - READ BEFORE USING

Injury to or loss of desirable trees, shrubs, flowers, vegetables, fruits or other vegetation may result from failure to observe the following: Do not apply, drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. Do not use on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of spray to desirable plants. Do not contaminate any body of water, including irrigation water that may be used on crops.

DO NOT APPLY BY AIR.

Do not apply in high winds.

Carefully observe sprayer clean-up instructions, as spray tank residue may damage crops other than spring wheat, durum wheat, winter wheat, or spring barley. Thoroughly clean all traces of tank mix from application equipment immediately after use. Flush tank, pump, hoses, and boom with several changes of water after removing nozzle tips and screens (clean these parts separately). Wash away any spray mixture from the outside of spray tank, nozzle or spray rig.

DO NOT APPLY EXPRESS® SG HERBICIDE WITH A CARRIER OTHER THAN WATER OR ANY ADDITIVE OTHER THAN THOSE INDICATED ON THIS LABEL. Other carriers may accelerate breakdown of this product and reduce its effectiveness.

GENERAL INFORMATION

EXPRESS® SG Herbicide provides control of certain broad-leaved weeds in summerfallow, as a post-harvest treatment and on fields to be planted to spring wheat (including durum), winter wheat, spring barley, oats, canary seed, pulse crops (including dry bean, faba bean, field pea, lupin and soybean), alfalfa, red clover, alsike clover smooth bromegrass, meadow bromegrass, timothy and creeping red fescue and in pasture and rangeland and as well as certain broadleaf weeds in tribenuron-methyl tolerant sunflowers (e.g. ExpressSun™ Sunflowers SU7).

Warm, moist growing conditions promote active weed growth and enhance the activity of EXPRESS® SG Herbicide by allowing maximum foliar uptake and contact activity. Weeds hardened off by environmental stress such as cold weather, drought stress or excessive heat may not be adequately controlled or suppressed, and regrowth may occur. EXPRESS® SG Herbicide may only be applied using ground spray equipment. For best results, ensure thorough spray coverage of target weeds.

EXPRESS® SG Herbicide rapidly stops growth of susceptible weeds. However, typical symptoms (discoloration) of dying weeds may not be noticeable for 1 to 3 weeks after application, depending on growing conditions and weed susceptibility. Degree of control and duration of effect depend on weed sensitivity, weed size, spray coverage and growing conditions. Activity of the herbicide mixture may be delayed by cold, dry conditions after application.

RECROPPING INTERVALS:

Fields treated with EXPRESS® SG Herbicide may be seeded to spring wheat (including durum), winter wheat, spring barley, oats, canary seed or pulse crops (including dry bean, faba bean, field pea, lupin and soybean), alfalfa, red clover or alsike clover, smooth brome grass, meadow brome grass, timothy and creeping red fescue a minimum of 24 hours after application.

Fields treated with EXPRESS® SG Herbicide may be seeded to canola, flax and lentils 60 days after application.

Fields treated with a post-harvest application of EXPRESS® SG Herbicide in the fall may be seeded in the spring to spring wheat (including durum), spring barley, oats, canary seed or pulse crops (including dry bean, faba bean, field pea, lupin and soybean), canola, flax, lentils, alfalfa, red clover or alsike clover, smooth brome grass, meadow brome grass, timothy and creeping red fescue or fields may be summer fallowed.

DIRECTIONS FOR USE:

Field Sprayer Application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

DO NOT apply by air.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, rangelands, riparian areas and shrub lands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of:		
		Aquatic Habitats of Depths:		Terrestrial Habitats
		Less than 1 m	Greater than 1 m	
Field sprayer*	Fallow, post-harvest and fields to be planted to wheat (spring, winter and durum), spring barley, oats, canary seed, pulse crops (including dry beans, fababeans, field pea, lupin and soybean), smooth brome grass, meadow brome grass, timothy, and creeping red fescue grown for forage and seed production and pasture and rangeland.	0	0	3
	Tribenuron-methyl tolerant sunflowers (e.g. ExpressSun™ Sunflowers SU7)	1	0	4

* For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

NOTE: Applicators may recalculate a site-specific buffer zone by combining information on current weather conditions and spray configuration for the following applications: all airblast applications, and for field and aerial applications which specify the following droplet size category wording on the product label: 'DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) Medium classification.' To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

FOR CONTROL OF FLIXWEED AND STINKWEED (FALL ROSETTES AND SPRING SEEDLINGS) IN SUMMERFALLOW AND POST-HARVEST

With any summerfallow or post-harvest treatment, allow at least 10 days to elapse between treatment and tillage. Only weeds that have emerged at the time of application will be controlled.

EXPRESS® SG HERBICIDE + 2,4-D ESTER TANK MIX:

Apply EXPRESS® SG Herbicide at 15 g/ha with 2,4-D Ester at 420 g/ha (0.6 L 2,4-D Ester LV-700).

Apply the tank mix in the spring after emergence, up to the early flowering stage of the target weeds. Only weeds that have emerged at the time of application will be controlled. This tank mixture will also control the broadleaf weeds controlled by 2,4-D Ester at 420 g/ha.

When using one of the herbicides containing the active ingredient tribenuron-methyl, follow the instructions on the label and restrict the total use of the active ingredient tribenuron-methyl to 15 grams per hectare per year.

CONTROL OF BROADLEAF WEEDS AND GRASSES IN FALLOW, POST-HARVEST AND PRE-SEED TO SPRING WHEAT (INCLUDING DURUM), WINTER WHEAT, SPRING BARLEY, OATS, CANARY SEED AND PULSE CROPS (INCLUDING DRY BEAN, FABABEAN, FIELD PEA, LUPIN AND SOYBEAN)

With any summerfallow or post-harvest treatment, allow at least 10 days to elapse between treatment and tillage. Only weeds emerged at time of application will be controlled.

Fields treated with EXPRESS® SG Herbicide can be seeded to spring wheat (including durum), winter wheat, spring barley, oats, canary seed or pulse crops (including dry bean, faba bean, field pea, lupin and soybean), alfalfa, red clover or alsike clover, smooth brome grass, meadow brome grass, timothy or creeping red fescue, a minimum of 24 hours after application.

Injury to pulse crops may occur on coarse-textured soils, low in organic matter (less than 3%), or in fields with variable soils, gravelly areas, sandy areas or eroded knolls. Avoid planting pulse crops in soils containing more than 50% sand.

Apply EXPRESS® SG Herbicide at 15 grams per hectare, tank mixed with glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt) and adjuvant (where required) in a total spray volume of 55-110 L/ha.

Use a maximum of 30 grams of EXPRESS® SG Herbicide per hectare per year.

Tank mixes not requiring surfactant:

Companion Herbicide	Application Rate (grams acid equivalent per hectare)	Application Stage	Weeds Controlled	Weeds Suppressed *
glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt)	450 g ae/ha	Up to 8 cm	Canada fleabane, common ragweed, narrow leaved hawk's beard	Scentless chamomile Canada thistle White cockle
		Up to 15 cm	dandelion, downy brome, flixweed, giant foxtail, green foxtail, hemp nettle, kochia, lady's thumb, lamb's-quarters, Persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats	
		Up to 3-leaf	Cow cockle, wild buckwheat	
		Rosette		

Consult the labels of the glyphosate products to be used as tankmix partners with EXPRESS® SG Herbicide for specific instructions of "Directions for Use" and restrictions.

Tank mixes requiring surfactant:

glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt) plus Agral* 90	270 g ae/ha	Any stage	Volunteer canola (including glyphosate tolerant)	Narrow-leaved hawk's beard
		Seedlings and rosettes		
	Up to 8 cm	green foxtail, lady's thumb, stinkweed, volunteer barley, volunteer wheat, wild buckwheat (1-3 leaf), wild mustard, wild oats (1-3- leaf)		
Up to 10 cm	0.35% v/v		kochia, lamb's-quarters	redroot pigweed, Russian thistle

glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt)	360 g ae/ha	Rosettes (non- flowering)	Dandelion (top growth)	Canada thistle (top growth)
plus Agral* 90	0.35 % v/v			

* Weed suppression is a visual reduction in weed competition (reduced population or vigour) as compared to an untreated area. Degree of suppression will vary with size of weed and environmental conditions prior to and following treatment.

Consult the labels of the glyphosate products to be used as tankmix partners with EXPRESS® SG Herbicide for specific instructions of "Directions for Use" and restrictions.

CONTROL OF BROADLEAF WEEDS AND GRASSES PRE-SEED TO SPRING WHEAT (INCLUDING DURUM) AND SPRING BARLEY WITH EXPRESS® SG HERBICIDE PLUS DUPONT DICAMBA L HERBICIDE PLUS GLYPHOSATE HERBICIDES (PRESENT AS POTASSIUM SALT, ISOPROPYLAMINE SALT, AMMONIUM SALT OR TRIMETHYLSULFONIUM SALT)

Fields treated with EXPRESS® SG Herbicide tank mixed with DuPont Dicamba L Herbicide and glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt) can be seeded to spring wheat (including durum) or spring barley a minimum of 24 hours after application. Only weeds emerged at time of application will be controlled.

Apply EXPRESS® SG Herbicide at 15 g/ha plus DuPont Dicamba L Herbicide at 0.145 L/ha (70 g ae/ha), tank mixed with glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt) at 450 g ae/ha in a total spray volume of 55-110 L/ha.

Use a maximum of 30 grams of EXPRESS® SG Herbicide per hectare per year.

Companion Herbicide	Application Rate (grams acid equivalent per hectare)	Application Stage	Weeds Controlled	Weeds Suppressed ¹
glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt) plus DuPont Dicamba L Herbicide ²	450 g ae/ha	Up to 8 cm	Canada fleabane, common ragweed, kochia (including Group 2 and Group 9 resistant biotypes), narrow leaved hawk's beard	Scentless chamomile
		Up to 15 cm	dandelion, downy brome, flixweed, giant foxtail, green foxtail, hemp nettle, kochia, lady's thumb, lamb's-quarters, Persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats	
	70 g ae/ha	Up to 3-leaf	Cow cockle, wild buckwheat	
	Rosette		Canada thistle White cockle	

¹ Weed suppression is a visual reduction in weed competition (reduced population or vigour) as compared to an untreated area. Degree of suppression will vary with size of weed and environmental conditions prior to and following treatment.

² Consult the labels of DuPont Dicamba L Herbicide and the glyphosate products to be used as tankmix partners with EXPRESS® SG Herbicide for specific instructions of "Directions for Use" and restrictions.

SEASON LONG CONTROL OF BROADLEAF WEEDS IN PASTURE AND RANGELAND

Apply EXPRESS® SG Herbicide at either 15 or 30 grams per hectare with a non-ionic surfactant at 0.2% v/v (2 L per 1000 L of water) to broadleaf weeds in the early bud to pre-bloom stage using a minimum spray volume of 55 L/hectare. Use a maximum of 30 grams of EXPRESS® SG Herbicide per hectare per year.

WEEDS:

Rates (grams per hectare)	Season long control
15	Tall buttercup and narrow-leaved hawks beard
30	Dandelion, white cockle, and common tansy

NOTE: Livestock may graze without restriction following treatment.

TRIBENURON-METHYL TOLERANT SUNFLOWERS (e.g. EXPRESSSUN™ SUNFLOWERS SU7)

EXPRESS® SG Herbicide plus HASTEN* NT spray adjuvant for control of lamb's-quarters and suppression of wild buckwheat.

Apply EXPRESS® SG Herbicide at 15 g/ha and HASTEN™ NT spray adjuvant at 0.5% v/v (5 L per 1000 L of water) at the 2-8 leaf stage of the tribenuron-methyl tolerant sunflowers (e.g. ExpressSun™ sunflowers SU7) for control of up to 9 leaf lamb's-quarters and suppression of 1-6 leaf wild buckwheat. Application should be made using a minimum spray volume of 55 L/ha.

EXPRESS® SG Herbicide 15 g /ha + HASTEN™ NT spray adjuvant 0.5% v/v	
Weeds Controlled	Weeds Suppressed
Lamb's-quarters	Wild Buckwheat

EXPRESS® SG Herbicide plus Assure® II Herbicide plus Merge* at 0.5-1.0 % v/v (0.5-1.0 litres per 100 litres of spray solution) or SURE-MIX™ at 0.5% v/v (0.5 litres per 100 litres of spray solution) for control and suppression of grassy and broadleaf weeds listed below.

Apply EXPRESS® SG Herbicide at 15 g/ha and Assure® II Herbicide at labelled rates plus Merge* at 0.5-1.0 % v/v (0.5-1.0 litres per 100 litres of spray solution) or SURE-MIX™ at 0.5% v/v (0.5 litres per 100 litres of spray solution) at the 2-8 leaf stage of the tribenuron-methyl tolerant sunflowers (e.g. ExpressSun™ sunflowers SU7) and at the leaf stage of the grass and broadleaf weeds indicated below. Application should be made using a minimum spray volume of 55 L/ha.

EXPRESS® SG Herbicide 15 g /ha + Assure® II Herbicide plus Merge or Sure-Mix	
Weeds Controlled	Weeds Suppressed
Lamb's-quarters Plus all weeds according to rates of use on the Assure® II label	Wild Buckwheat Plus all weeds according to rates of use on the Assure® II label

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than E. I. du Pont Canada Company and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion Program. E. I. du Pont Canada Company itself makes no representation or warranty with respect to product performance (efficacy) and crop tolerance (phytotoxicity) of this product when used on the crops listed below. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold E. I. du Pont Canada Company harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

FOR PRE-SEED APPLICATION TO ALFALFA, RED CLOVER AND ALSIKE CLOVER GROWN FOR SEED OR FORAGE PRODUCTION:

Apply EXPRESS® SG Herbicide at 15 g/ha tank mixed with 450 g ae/ha glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt) and 0.35% adjuvant (where required) in a total spray volume of 55-110 L/ha. Only weeds emerged at time of application will be controlled. Alfalfa, red clover or alsike clove may be planted 24 hours after application.

Injury to these crops may occur on coarse-textured soils, low in organic matter (less than 3%), or in fields with variable soils, gravelly areas, sandy areas or eroded knolls. Avoid planting these crops in soils containing more than 50% sand.

Refer to the appropriate sections of the EXPRESS® SG Herbicide label for a complete list of weeds controlled, weed stage at application, as well as additional application and/or use precaution instructions, and/or mixing instructions.

FOR PRE-SEED APPLICATION TO SMOOTH BROMEGRASS, MEADOW BROMEGRASS, TIMOTHY, AND CREEPING RED FESCUE GROWN FOR FORAGE AND SEED PRODUCTION:

Apply EXPRESS® SG Herbicide at 15 grams per hectare, tank mixed with glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt) and adjuvant (where required) in a total spray volume of 55-110 L/ha. Only weeds emerged at time of application will be controlled. Smooth brome grass, meadow brome grass, timothy or and creeping red fescue may be planted 24 hours after application.

Injury to these crops may occur on coarse-textured soils, low in organic matter (less than 3%), or in fields with variable soils, gravelly areas, sandy areas or eroded knolls. Avoid planting these crops in soils containing more than 50% sand.

Refer to the appropriate sections of the EXPRESS SG Herbicide label for a complete list of weeds controlled, weed stage at application, as well as additional application and/or use precaution instructions, and/or mixing instructions.

MIXING INSTRUCTIONS

1. Always start with a clean and empty sprayer tank.
2. Fill the tank 1/3 to 1/2 full of **clean** water.
3. With the agitator running, add the required amount of EXPRESS® SG Herbicide. Continue to agitate for a minimum of 5 minutes to ensure that EXPRESS® SG Herbicide is **completely** dissolved.
4. Make sure there are no un-dissolved granules, and then add the required amount of the tank mix partner.
5. If the tank mix partner is an Emulsifiable Concentrate (EC), reduce agitation to avoid inducing an invert emulsion. Once dissolved, EXPRESS® SG Herbicide will remain in solution.
6. Add the rest of the water. Use a minimum spray volume of 55 L/ha.
7. If required for the tank mixture, add surfactant. If an antifoam agent is required, add last.
8. Refer to the section Specific Tank Mix Directions for mixing order and other mixing instructions.
9. For repeat tank loads, reduce the material remaining in the tank to 10% of the original volume **or less** before proceeding with step 1, because remaining chemicals may prevent EXPRESS® SG Herbicide granules from completely dissolving. If this is not possible, pre-slurry EXPRESS® SG Herbicide in a small amount (5-10 L) of water before adding to the tank.

Once dissolved, EXPRESS® SG Herbicide will not settle out, even if the sprayer is parked for long periods of time. Spray preparation should be used within 24 hours or product degradation may occur.

SPECIAL MIXING INSTRUCTIONS FOR CHEMICAL HANDLERS (INDUCTION DEVICES FOR CLOSED SYSTEM LOADING OF SPRAYERS)

1. Ensure the chemical handler is clean (rinsed with ammonia).
2. For best results, add EXPRESS® SG Herbicide to the top of the tank.
3. If a chemical handler is used, make sure that all of the granules of EXPRESS® SG Herbicide are completely dissolved and injected into the main tank with agitation before adding other chemicals.

4. Low water volumes in some chemical handlers can cause the water to become saturated with EXPRESS® SG Herbicide, leaving un-dissolved granules. In that case, rinse the chemical handler with clean water before adding any other chemical.
5. Always dissolve the EXPRESS® SG Herbicide granules with agitation in the main tank before adding a tank mix partner.

NOTE: Follow the clean-out procedure recommended for sprayer tanks for the chemical handler.

SPECIFIC TANK MIX DIRECTIONS

EXPRESS® SG Herbicide. + 2,4-D Ester: once EXPRESS® SG Herbicide is completely dissolved, add the required amount of 2,4-D Ester with reduced agitation. Do not add a surfactant.

EXPRESS® SG Herbicide + glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt): once EXPRESS® SG Herbicide is completely dissolved, add the required amount of glyphosate (present as potassium salt, isopropylamine salt, ammonium salt or trimethylsulfonium salt) while maintaining agitation. Once components are completely mixed, if required, add Agral* 90 at 3.5 L per 1000 L of spray solution (0.35% v/v).

EQUIPMENT-SPRAY VOLUMES

Apply the spray mixture uniformly with properly calibrated ground equipment only. Ensure thorough coverage and a uniform spray pattern. Flat fan nozzles are recommended (minimum 55 litres spray volume per hectare). Use 50 mesh filter screens or larger (metal or nylon).

Once EXPRESS® SG Herbicide is in solution, it will not settle out. Apply uniformly and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from over application.

Reduce drift with high water volume, low pressure, coarse sprays and drop nozzles. Do not apply with more than 275 kPa spray pressure.

DO NOT APPLY BY AIR.

SPRAYER CLEANOUT

To avoid subsequent injury to crops other than wheat, spring barley or oats, immediately after spraying and prior to spraying other crops, thoroughly remove all traces of EXPRESS® SG Herbicide from mixing and spray equipment as follows:

1. Drain tank and flush tank, boom and hoses with clean water.
2. Visually inspect tank to ensure removal of all visible herbicide residues. If necessary, repeat Step 1.
3. Fill the tank with clean water, and then add 1 litre household AMMONIA (containing minimum of 3% ammonia) or equivalent amount of a sprayer tank cleaner containing ammonia, per 100 litres of water.
4. Flush solution through boom and hoses, and then add more water to completely fill tank. Allow to sit for

15 minutes with agitation.

5. Drain the tank.
6. Remove the nozzles, screens, and boom end caps and clean separately in a bucket containing ammonia cleaning agent and water.
7. Thoroughly rinse the tank with clean water for a minimum of 5 minutes, flushing water through the hoses and boom.

NOTE: When using a chemical handler, follow the above cleanout procedure for this piece of equipment.

CAUTION: Do not use ammonia with chlorine bleach. Using ammonia with chlorine bleach will release a gas with a musty chlorine odour that can cause eye, nose, throat, and lung irritation. Do not clean equipment in an enclosed area.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, EXPRESS® SG Herbicide is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to EXPRESS® SG Herbicide and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- ◆ Where possible rotate the use of EXPRESS® SG Herbicide or other Group 2 herbicides with different herbicide groups that control the same weeds in a field.
- ◆ Use tank mixtures with herbicides from a different group when such use is permitted
- ◆ Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- ◆ Monitor treated weed populations for resistance development.
- ◆ Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- ◆ Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- ◆ For further information or to report suspected resistance, contact your local DuPont representative or the DuPont hotline at 1-800-667-3925 for further information.

USE PRECAUTIONS:

Do not apply to irrigated land where tail water will be used to irrigate other cropland.

Do not contaminate irrigation water.

Do not remove soil from treated fields for use on lawns, in gardens or for backfill.

OVERSPRAY OR DRIFT TO IMPORTANT WILDLIFE HABITATS SUCH AS SHELTERBELTS, WETLANDS, SLOUGHS OR DRY SLOUGH BORDERS, OR WOODLOTS, SHOULD BE AVOIDED. Observe buffer zones specified under DIRECTIONS FOR USE

Control of weeds growing in wheel tracks may be reduced if EXPRESS® SG Herbicide is applied under dry, dusty conditions.

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact DuPont at 1-800-667-3925 for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by DuPont.

STORAGE AND DISPOSAL

STORAGE:

Store products in original containers only, away from fertilizer, seeds, food or feed.

Not for use or storage in or around the home. Keep container closed.

DISPOSAL:

If this is a non-reusable container:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements

If this is a refillable container:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

If this is a returnable container:

Do not reuse this container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For all package types:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *PEST CONTROL PRODUCTS ACT* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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*All other products mentioned are trademarks of their respective manufacturers.



DuPont™ Express® SG herbicide

Version 2.3

Revision Date 03/11/2016

Ref. 130000012165

This SDS adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DuPont™ Express® SG herbicide
 Tradename/Synonym : B11646119
 DPX-L5300 50SG
 Tribenuron methyl 50SG
 DuPont™ Affinity 2 Herbicide
 Affinity 50 SG
 Granstar 50 SG
 Tribenuron methyl: Methyl 2-[[[(4-methoxy-6-methyl-1,3,5-triazin-2-yl)methylamino]carbonyl]amino]sulfonyl]benzoate
 DuPont™ Express® SG MUP

SDS Number : 130000012165

Product Use : Herbicide
 Manufacturer : E.I. du Pont Canada Company
 P.O. Box 2200, Streetsville
 Mississauga, ON
 L5M 2H3
 Canada

Product Information : 1-800-387-2122
 Medical Emergency : 1-800-441-3637 (24 hours)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Caution

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes and clothing.

Potential Health Effects

This section includes potential acute adverse effects which could occur if this material is not used according to the label.

Skin

**DuPont™ Express® SG herbicide**

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Tribenuron methyl : May cause allergic skin reaction.

Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

Tribenuron methyl : DuPont has classified this material as a probable human carcinogen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Tribenuron methyl	101200-48-0	50 %
Other Ingredients		50 %

SECTION 4. FIRST AID MEASURES

- Skin contact : Take off all contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- Eye contact : No specific intervention is indicated as the compound is not likely to be hazardous. Consult a physician if necessary.
- Inhalation : No specific intervention is indicated as the compound is not likely to be hazardous. Consult a physician if necessary. Remove person to fresh air. If signs/symptoms continue, get medical attention. Artificial respiration and/or oxygen may be necessary. Call a poison control center or doctor for treatment advice.
- Ingestion : No specific intervention is indicated as the compound is not likely to be hazardous. Consult a physician if necessary.



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General advice : Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
For medical emergencies involving this product, call toll free 1-800-441-3637.
See Label for Additional Precautions and Directions for Use.

Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Flammable Properties

Flash point : Not applicable

Fire and Explosion Hazard : Not a fire or explosion hazard. Under severe dusting conditions, this material may form explosive mixtures in air.

Suitable extinguishing media : Water spray, Dry chemical, Foam, Carbon dioxide (CO2)

Unsuitable extinguishing media : High volume water jet, (contamination risk)

Firefighting Instructions : Wear full protective clothing and self-contained breathing apparatus. (on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers/tanks with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel) : Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Use personal protective equipment.

Spill Cleanup : Sweep up and shovel into suitable containers for disposal.

Accidental Release Measures : Prevent material from entering sewers, waterways, or low areas. Never return spills in original containers for re-use. Dispose of in accordance with local regulations.



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SECTION 7. HANDLING AND STORAGE

- Handling (Personnel) : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/PPE immediately if material gets inside. Wash thoroughly and put on clean clothing. Wash the outside of gloves before removing. Remove personal protective equipment immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.
- Handling (Physical Aspects) : Keep away from heat and sources of ignition.
- Storage : Store in original container. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place. Keep out of the reach of children.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Engineering controls : Use only with adequate ventilation.
- Personal protective equipment
 - Respiratory protection : No personal respiratory protective equipment normally required.
 - Skin and body protection : Applicators and other handlers must wear:
 - Long sleeved shirt and long pants
 - Shoes plus socks
 - Chemical resistant gloves made of any waterproof material, such as polyethylene or polyvinyl chloride.
 - PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:
 - Coveralls
 - Chemical resistant gloves made of any waterproof material
 - Shoes plus socks
 - Protective measures : Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Notify workers of the application by warning them orally or by posting warning signs at entrances to treated areas.
- Exposure Guidelines


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Exposure Limit Values

Tribenuron methyl AEL *	(DUPONT)	0.5 mg/m ³	12 hr. TWA
AEL *	(DUPONT)	1 mg/m ³	8 hr. TWA
Sodium carbonate AEL *	(DUPONT)	5 mg/m ³	8 & 12 hr. TWA Total dust.

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	: solid, granular
Color	: light brown
Odor	: mild
pH	: 8.4 - 9.4 at 10 g/l 20 °C (68 °F) (1% solution in water)
Oxidizing Substance	: The product is not oxidizing.
Bulk density	: 640 kg/m ³ packed
Water solubility	: soluble

SECTION 10. STABILITY AND REACTIVITY

Stability	: Stable at normal temperatures and storage conditions.
Conditions to avoid	: None reasonably foreseeable.
Incompatibility	: No materials to be especially mentioned.
Hazardous reactions	: Polymerization will not occur.

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SECTION 11. TOXICOLOGICAL INFORMATION

DuPont™ Express® SG herbicide	
Dermal LD50	: > 5,000 mg/kg , Rat
Oral LD50	: > 5,000 mg/kg , Rat
Skin irritation	: No skin irritation, Rabbit
Eye irritation	: No eye irritation, Rabbit
Sensitisation	: The product is a skin sensitiser, sub-category 1B., Guinea pig
Tribenuron methyl	
Inhalation 4 h LC50	: > 6.0 mg/l , Rat
Repeated dose toxicity	: The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions. Oral - feed Mouse 90 d Reduced body weight gain Oral Rat 28 d Reduced body weight gain
Carcinogenicity	: Not classifiable as a human carcinogen. An increased incidence of tumours was observed in laboratory animals. Target(s): Mammary glands
Mutagenicity	: Animal testing did not show any mutagenic effects. Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Reproductive toxicity	: No toxicity to reproduction


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SECTION 12. ECOLOGICAL INFORMATION
Aquatic Toxicity

DuPont™ Express® SG herbicide

96 h LC50	:	Oncorhynchus mykiss (rainbow trout) > 120 mg/l
72 h ErC50	:	Pseudokirchneriella subcapitata (microalgae) > 0.080 mg/l
48 h EC50	:	Daphnia (water flea) > 120 mg/l

Additional ecological information : Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal	:	Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.
Container disposal:	:	Container Refilling and Disposal: Refer to the product label for instructions. Do not transport if this container is damaged or leaking.

SECTION 14. TRANSPORT INFORMATION

IATA_C	UN number	:	3077
	Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (Tribenuron methyl)
	Class	:	9
	Packing group	:	III
	Labelling No.	:	9MI
IMDG	UN number	:	3077
	Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Tribenuron methyl)
	Class	:	9
	Packing group	:	III

**DuPont™ Express® SG herbicide**

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Labelling No. : 9

Not regulated as a hazardous material by TDG.

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA special provision A197, and ADR/RID special provision 375.

SECTION 15. REGULATORY INFORMATION

PCP Registration # : HERBICIDE: 28262 /MUP: 28176
Remarks : Regulated under the Pest Control Products Act - WHMIS exempt.

SECTION 16. OTHER INFORMATION

MSDS preparation date : 03/11/2016

® Registered trademark of E.I. du Pont de Nemours and Company
™ Trademark of E.I. du Pont de Nemours and Company.

Contact person : E.I. DuPont Canada Company, Mississauga, Ontario, L5M 2H3

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.



12.5% ANTIFOAMING/DEFOAMING AGENT AGENT ANTIMOUSSANT - DÉMOUSSANT

Principal Functioning Agents:		Principale matière active :	
Dimethylpolysiloxane, polypropylene glycol, and methylated silicone	12.5%	Diméthylpolysiloxane, glycol polypropylénique, et silicone méthylé	12.5%
Constituents ineffective as spray adjuvant		Matières inertes comme adjuvants de pulvérisation	
87.5%		87.5%	
TOTAL	100.0%	TOTAL	100,0 %

**KEEP OUT OF REACH OF CHILDREN
CAUTION
GARDER HORS DE LA PORTÉE DES ENFANTS
ATTENTION
NET CONTENTS/CONTENU NET : 946 mL**

 *Manufactured for and Distributed by/Fabriqué pour et Distribué par :*
LOVELAND PRODUCTS CANADA INC.
789 Donnybrook Drive
Dorchester, Ontario N0L 1G5
Product inquiries/Renseignements sur les produits : 1-800-328-4678
24hr emergency contact/Contact en cas d'urgence, 24 heures sur 24 : 1-800-561-8273

FIGHTER-F 12.5

CAUTION - Harmful if inhaled or absorbed through skin. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling.



MISE EN GARDE - Dangereux si inhalé ou absorbé par la peau. Éviter tout contact avec la peau, les yeux ou les vêtements. Éviter de respirer les embruns de pulvérisation. Bien se laver à l'eau et au savon après avoir manipulé le produit.

MSDS is AVAILABLE. Une FS est DISPONIBLE.
LOVELAND PRODUCTS CANADA, INC. • Dorchester, Ontario N0L 1G5 • 1-800-328-4678

Lot Number/Numéro de lot : see bottle / voir la bouteille



12.5% ANTIFOAMING/DEFOAMING AGENT AGENT ANTIMOUSSANT - DÉMOUSSANT

Principal Functioning Agents:		Principale matière active :	
Dimethylpolysiloxane, polypropylene glycol, and methylated silicone	12.5%	Diméthylpolysiloxane, glycol polypropylénique, et silicone méthylé	12,5 %
Constituents ineffective as spray adjuvant		Matières inertes comme adjuvants de pulvérisation	
87.5%		87.5%	
TOTAL	100.0%	TOTAL	100,0 %

**KEEP OUT OF REACH OF CHILDREN
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FIGHTER-F 12.5

CAUTION - Harmful if inhaled or absorbed through skin. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling.



MISE EN GARDE - Dangereux si inhalé ou absorbé par la peau. Éviter tout contact avec la peau, les yeux ou les vêtements. Éviter de respirer les embruns de pulvérisation. Bien se laver à l'eau et au savon après avoir manipulé le produit.

MSDS is AVAILABLE. Une FS est DISPONIBLE.
LOVELAND PRODUCTS CANADA, INC. • Dorchester, Ontario N0L 1G5 • 1-800-328-4678

Lot Number/Numéro de lot : see bottle / voir la bouteille

Personal Protective Equipment: Wear chemical-resistant gloves, long-sleeved shirt and long pants, shoes plus socks when mixing or applying FIGHTER-F 12.5.

KEEP FROM FREEZING — SHAKE WELL BEFORE USING

General: FIGHTER-F 12.5 is designed to effectively control foam in water, oil, fertilizer and pesticide spray mixtures. FIGHTER-F 12.5 will reduce mixing time by facilitating faster and more accurate filling. Foam can effect calibration and metering of spray mixtures. FIGHTER-F 12.5 will reduce waste and exposure to pesticides contained in foam running over the top of the tank.

Directions for Use: Use 75-450 mL of FIGHTER-F 12.5 per 1000 L of spray mixture. For best results, add FIGHTER-F 12.5 to the water before adding the agricultural chemicals. Agitation will aid dispersion. Rate may need to be adjusted. Effectiveness of FIGHTER-F 12.5 depends upon temperature, viscosity and composition of spray mixture. Decrease or increase rate until desired foam control is obtained.

Storage: Store in cool, dry place. Store in original container. Keep container tightly closed. Do not reuse empty container.

Disposal: Do not contaminate water, food or feed by storage or disposal. Wastes may be disposed of on-site or at an approved waste disposal facility. Triple rinse (or equivalent) adding rinse water to spray tank. Offer container for recycling or dispose of in sanitary landfill or by other procedures approved by appropriate authorities. Recycling decontaminated containers is the best option of container disposal.

WARRANTY DISCLAIMER AND NOTICE

THE DIRECTIONS FOR USE OF THIS PRODUCT ARE BELIEVED TO BE ADEQUATE AND SHOULD BE FOLLOWED CAREFULLY. IT IS IMPOSSIBLE TO ELIMINATE ALL RISKS INHERENTLY ASSOCIATED WITH THE USE OF THIS PRODUCT. CROP INJURY, INEFFECTIVENESS, OR OTHER UNINTENDED CONSEQUENCES MAY RESULT DUE TO SUCH FACTORS AS WEATHER CONDITIONS, PRESENCE OR ABSENCE OF OTHER MATERIALS, OR THE MANNER OF USE OR APPLICATION, ALL OF WHICH ARE BEYOND THE CONTROL OF LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER. THIS PRODUCT IS FURNISHED "AS IS" BY LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER, AND ARE SUBJECT ONLY TO THE MANUFACTURER'S WARRANTIES, IF ANY, WHICH APPEAR ON THIS LABEL. EXCEPT AS EXPRESSLY PROVIDED HEREIN, LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER MAKES NO WARRANTIES, GUARANTEES, CONDITIONS OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THIS PRODUCT OR USE OF THIS PRODUCT, INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE OR ELIGIBILITY OF THIS PRODUCT FOR ANY PARTICULAR TRADE USAGE. EXCEPT AS EXPRESSLY STATED HEREIN, LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER MAKES NO WARRANTY OF RESULTS TO BE OBTAINED BY USE OF THIS PRODUCT. BUYER'S OR USER'S EXCLUSIVE REMEDY, AND LOVELAND PRODUCTS CANADA INC.'S, THE MANUFACTURER'S OR SELLER'S TOTAL LIABILITY, SHALL BE LIMITED TO DAMAGES NOT EXCEEDING THE COST OF THIS PRODUCT. NO AGENT OR EMPLOYEE OF LOVELAND PRODUCTS CANADA INC. OR SELLER IS AUTHORIZED TO AMEND THE TERMS OF THIS WARRANTY DISCLAIMER OR THIS LABEL OR TO MAKE A REPRESENTATION OR RECOMMENDATION DIFFERENT FROM OR INCONSISTENT WITH THIS LABEL OR THIS PRODUCT. IN NO EVENT SHALL LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES

(INCLUDING WITHOUT LIMITATION LOSS OF PROFITS OR REVENUES) RESULTING FROM THE USE, HANDLING, APPLICATION, STORAGE OR DISPOSAL OF THIS PRODUCT OR FOR DAMAGES IN THE NATURE OF PENALTIES AND THE BUYER AND USER WAIVE ANY RIGHT THEY MAY HAVE TO SUCH DAMAGES.

Équipement de protection individuelle : Porter des gants résistant aux produits chimiques, une chemise à manches longues, un pantalon long, des chaussures et des bas lors du mélange et de l'application du produit.

GARDER À L'ABRI DU GEL — BIEN AGITER AVANT L'EMPLOI

Renseignements généraux : FIGHTER-F 12.5 a été conçu pour enlever efficacement la mousse dans les bouillies de pulvérisation contenant des pesticides, des engrais, de l'huile et de l'eau. FIGHTER-F 12.5 réduit le temps de mélange en facilitant un remplissage plus rapide et plus précis. La mousse peut affecter le réglage et le dosage des bouillies de pulvérisation. FIGHTER-F 12.5 permet aussi de diminuer les déchets et l'exposition aux pesticides que renferme la mousse qui déborde par-dessus le haut du réservoir.

Mode d'emploi : Employer 75-450 mL de FIGHTER-F 12.5 par 1 000 L de bouillie de pulvérisation. Pour obtenir les meilleurs résultats possibles, ajouter l'agent FIGHTER-F 12.5 à l'eau avant d'y verser les produits chimiques agricoles. Une bonne agitation facilite sa dispersion. Il faudra peut-être modifier la quantité utilisée. L'efficacité de l'agent FIGHTER-F 12.5 dépend de la température, de la viscosité et de la composition de la bouillie de pulvérisation. Accroître ou diminuer la dose jusqu'à ce qu'on obtienne l'action antimoussante désirée.

Entreposage : Conserver dans un endroit frais et sec. Entreposer dans le contenant d'origine. Tenir le contenant hermétiquement fermé. Ne pas réutiliser le contenant vide.

Élimination : Ne jamais contaminer l'eau, les aliments ni les moulées durant l'entreposage ou l'élimination du produit. Les déchets peuvent être éliminés sur les lieux ou dans une installation d'élimination approuvée. Rincer le contenant vide à trois reprises (ou l'équivalent), puis verser les rinçures dans le réservoir du pulvérisateur. Offrir le contenant pour le recyclage ou s'en débarrasser dans un site d'enfouissement sanitaire ou d'une autre façon approuvée par les autorités appropriées. Le recyclage des contenants décontaminés constitue la meilleure option en ce qui concerne l'élimination des contenants vides.

EXONÉRATION DE GARANTIE ET AVIS

LE MODE D'EMPLOI POUR CE PRODUIT EST CONSIDÉRÉ COMME APPROPRIÉ ET IL FAUT S'Y CONFORMER ATTENTIVEMENT. IL EST IMPOSSIBLE D'ÉLIMINER TOUS LES RISQUES INHÉRENTS ASSOCIÉS À L'UTILISATION DE CE PRODUIT. LES DOMMAGES AUX CULTURES, L'INEFFICACITÉ DU TRAITEMENT OU D'AUTRES CONSÉQUENCES NON INTENTIONNELLES PEUVENT EN RÉSULTER À CAUSE DE FACTEURS TELS QUE LES CONDITIONS ATMOSPHÉRIQUES, LA PRÉSENCE OU L'ABSENCE D'AUTRES MATIÈRES OU BIEN LA MÉTHODE D'UTILISATION OU D'APPLICATION, QUI SONT TOUS INDÉPENDANTS DE LA VOLONTÉ DE LOVELAND PRODUCTS CANADA, INC., LE FABRICANT OU LE VENDEUR. CE PRODUIT VOUS EST FOURNI « TEL QUEL » PAR LOVELAND PRODUCTS CANADA, INC., LE FABRICANT OU LE VENDEUR, ET IL N'EST COUVERT QUE PAR LES GARANTIES DU FABRICANT QUI, LE CAS ÉCHÉANT, APPARAÎSSENT SUR CETTE ÉTIQUETTE. SAUF CE QUI EST EXPRESSÉMENT PRÉVU DANS LES PRÉSENTES, LOVELAND PRODUCTS CANADA, INC., LE FABRICANT OU LE VENDEUR, N'OFFRE AUCUNE GARANTIE OU CONDITION ET NE FAIT AUCUNE REPRÉSENTATION DE QUELQUE NATURE QUE CE SOIT À L'ACHETEUR OU À L'UTILISATEUR, DE FAÇON EXPLICITE OU IMPLICITE, OU PAR USAGE DU COMMERCE, STATUTAIRE OU AUTREMENT, CONCERNANT

IN CASE OF EMERGENCY DUE TO A MAJOR SPILL, FIRE OR POISONING INVOLVING THIS PRODUCT CALL DAY OR NIGHT, 1-800-561-8273 or CHEMTREC 1-800-424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURED FOR:

LOVELAND PRODUCTS CANADA, INC.
789 Donnybrook Drive • Dorchester, Ontario N0L 1G5

24-Hour Emergency Phone: 1-800-561-8273
Additional Emergency Phone (Canutec): 1-613-996-6666 (Collect)

CHEMICAL IDENTITY: Dimethylpolysiloxane; methylated silicone; Polypropylene glycol

CHEMICAL FAMILY: Anti-foamer – De-foamer

PCP REG. NO.: Not applicable

SDS Number: 1000680186-15-LPI

SDS Revisions: Section 1

Date of Issue: 09/14/15

Supersedes: 09/14/12

2. HAZARDS IDENTIFICATION SUMMARY

KEEP OUT OF REACH OF CHILDREN – CAUTION – Harmful if inhaled or absorbed through skin. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling.

This product is white liquid with a mild odour.

3. COMPOSITION, INFORMATION ON INGREDIENTS

<u>Chemical Ingredients:</u>	<u>Percentage by Weight:</u>	<u>CAS No.</u>	<u>TLV (Units)</u>
Dimethylpolysiloxane, polypropylene glycol, and Methylated silicone, also contains Glycerine	12.50	Mixture 56-81-5	none established 10 mg/m ³
Other Ingredients	87.50		

4. FIRST AID MEASURES

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 – 20 minutes. Call a poison control centre or doctor for treatment advice.

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-800-561-8273. Take container, label or product name and Pest Control Product Registration number, if applicable, with you when seeking medical attention.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F/Test Method):	>212°F / >100°C (TCC)
FLAMMABLE LIMITS (LFL & UFL):	Not established
EXTINGUISHING MEDIA:	Carbon dioxide (CO ₂), or dry chemical.
HAZARDOUS COMBUSTION PRODUCTS:	None known.
SPECIAL FIRE FIGHTING PROCEDURES:	Wear self-contained breathing apparatus and full protective gear. Do not use a direct stream of water.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Dike area to contain run-off and prevent contamination of water supplies. Product may produce a floating fire.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Wear appropriate personal protective equipment (refer to Section 8) when responding to spills. Shut off source of leak if safe to do so. Dike and contain spill. Soak up residue with absorbent such as clay, sand or other suitable material and dispose of properly. Flush area with water to remove trace residue. Contain runoff from residue flush and dispose of properly. Place in container for proper disposal. Check local, provincial and federal regulations for proper disposal.

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

7. HANDLING AND STORAGE

HANDLING: Wear chemical-resistant gloves, long-sleeved shirt and long pants, shoes plus socks when mixing or applying. Wash with soap and water after handling and before eating, drinking, chewing gum or smoking tobacco. Remove and wash clothing before reuse.

STORAGE: Do not contaminate water, food, or feed by storage or disposal. Store in original container. Keep from freezing. Shake well before using. Keep container tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Work in well-ventilated area. Local ventilation may be required if working in confined spaces.
RESPIRATORY PROTECTION: Wear a NIOSH approved respirator for pesticides if necessary.
EYE PROTECTION: Chemical goggles or shielded safety glasses.
SKIN PROTECTION: Wear long sleeved shirt, long pants, and shoes with socks. Wear chemical-resistant gloves.

	OSHA PEL 8 hr TWA	ACGIH TLV-TWA
Glycerin	5 mg/m ³ (respirable fraction)	10 mg/m ³ (mist)

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOUR: White liquid with mild odour
SPECIFIC GRAVITY (Water = 1): 1.00 g/ml
VAPOUR PRESSURE: Not established
PERCENT VOLATILE (by volume): 82.5 – 87.5%
Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

BULK DENSITY: 1.00 kg/L
BOILING POINT: Not established
EVAPORATION RATE: Not established

SOLUBILITY: Disperses
pH: 5.0 - 7.0

10. STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: Cold temperatures.
INCOMPATIBILITY: Inorganic acids and inorganic bases.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide from burning.
HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

Acute Oral LD₅₀ (rat): >5000 mg/kg [EPA Category IV]
Eye Irritation (rabbit): Not an irritant [EPA Category IV]
Inhalation LC₅₀ (rat): Not established
Carcinogenic Potential: None listed by OSHA, NTP, IARC, and ACGIH as a carcinogen

Acute Dermal LD₅₀ (rat): >2000 mg/kg [EPA Category IV]
Skin Irritation (rabbit): Moderate skin irritant [EPA Category III]
Skin Sensitization (guinea pig): Not a sensitizer

12. ECOLOGICAL INFORMATION

Aquatic Acute Toxicity

Rainbow Trout -	96 HR LC ₅₀ : 17.6 mg/L	NOEC: 12.5 mg/L
Daphnia Magna -	48 HR EC ₅₀ : 9.3 mg/L	NOEC: 7.5 mg/L

13. DISPOSAL CONSIDERATIONS

Do not reuse containers for any purpose. Refillable Container: For disposal, the container may be returned to the point of purchase (dealer/distributor). It must be refilled by the dealer/distributor with the same product. Container is recyclable, and is to be disposed of at a container collection site. Contact your local dealer/distributor for the location of the nearest collection site. Before taking container to the collection site: Triple or pressure-rinse the empty container, adding the rinsate to the spray tank. Make the empty container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Do not contaminate water, food, or feed by storage or disposal.

14. TRANSPORT INFORMATION

DOT/TDG Shipping Description: NOT REGULATED
Freight Classification: ADHESIVES, ADJUVANTS, SPREADERS OR STICKERS (NMFC 4610; CLASS: 60)

15. REGULATORY INFORMATION

NFPA & HMIS Hazard Ratings:	NFPA		HMIS
	1 Health	0 Least	1 Health
	0 Flammability	1 Slight	0 Flammability
	0 Instability	2 Moderate	0 Reactivity
		3 High	B PPE
		4 Severe	

SARA Hazard Notification/Reporting
SARA Title III Hazard Category: Immediate Y Fire N Sudden Release of Pressure N
 Delayed N Reactive N

Reportable Quantity (RQ) under U.S. CERCLA: Not listed
SARA, Title III, Section 313: Not listed
RCRA Waste Code: Not listed
CA Proposition 65: Not applicable
WHMIS (Canada): D2B

16. OTHER INFORMATION

SDS STATUS: Section 1 revised

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental Health and Safety

Fighter-F is a registered trademark of Loveland Products, Inc.

Disclaimer and Limitation of Liability: This data sheet was developed from information on the constituent materials identified herein and does not relate to the use of such materials in combination with any other material or process. No warranty is expressed or implied with respect to the completeness or ongoing accuracy of the information contained in this data sheet, and LOVELAND PRODUCTS CANADA, INC. disclaims all liability for reliance on such information. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.

FINISH

Ag Sprayer Cleaner
Nettoyeur de pulvérisateur agricole

(7% Ammonia)

RECOMMENDED FOR AGRICULTURAL SPRAYER CLEANING DIRECTIONS FOR USE

1. Immediately after use, drain and flush tank, sprayer booms and hoses with clean water.
2. Fill tank with water while adding 1/2 litre of FINISH CLEANER for every 100 litres of water. This container will treat 2,000 litres (400 gallons) of water.
3. Agitate and flush sprayer system completely.
4. Rinse and flush with a small amount of water.

NOTES:

- As some pesticides have specific cleanout recommendations, always refer to the product label for cleaning instructions.
- DO NOT clean sprayer near wells, or water sources, or near desirable vegetation. Dispose of rinse water in an approved manner.
- FINISH is a cleaning agent that can be used for cleaning pesticides from commercial sprayers.
- This is a cleaning agent only and does not de-activate or break down the pesticide being removed.
- DO NOT mix with chlorine bleach. Using ammonia with chlorine bleach will release a gas with a musty chlorine odour which can cause irritation to eyes, throat and lungs.
- Do not freeze.

READ THE LABEL BEFORE USING

NET CONTENTS/CONTENU NET:

10 L

(7% ammoniac)

RECOMMANDÉ COMME NETTOYANT À PULVÉRISATEUR AGRICOLE DIRECTIVES D'UTILISATIONS

1. Immédiatement après utilisation, drainez et nettoyez le réservoir, les rampes et tuyaux du pulvérisateur avec de l'eau propre.
2. Tout en remplissant le réservoir d'eau, ajoutez 1/2 litre de FINISH pour chaque 100 litres d'eau. Un contenant (10 L) de FINISH traite 2,000 litres (400 gal.) d'eau.
3. Agitez puis videz complètement tout le système du pulvérisateur.
4. Rincez à grande eau.

NOTES:

- Comme tous les produits ont des recommandations spécifiques de nettoyage, toujours consultez l'étiquette pour la procédure à suivre.
- NE PAS nettoyez les pulvérisateurs près d'un puits ou d'une source d'eau ou près d'une végétation qu'on désire conserver. Disposez de l'eau de rinçage d'une façon appropriée.
- FINISH est un agent nettoyant de pulvérisateurs commerciaux pour pesticides.
- C'est un agent nettoyant seulement. Il ne désactive pas ni ne dégrade les pesticides.
- NE PAS mélanger avec des agents de blanchiment à base de chlore (eau de javel). L'ammoniac en combinaison avec le chlore dégage une odeur de moisi pouvant irriter les yeux, la gorge et les poumons.
- Ne pas gelez.

LIRE L'ÉTIQUETTE AVANT USAGE

Bayer CropScience Inc.

Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB T2C 3G3

Product Information/Renseignements sur le produit :

1-888-283-6847

www.bayercropscience.ca

CA04470795C
150108 02/15

Bayer

SAFETY DATA SHEET



FINISH AG SPRAYER CLEANER

Version 2.0 / CDN
102000021458

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Revision Date: 04/23/2018
Print Date: 04/26/2018

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name FINISH AG SPRAYER CLEANER

Product code (UVP) 79536712

SDS Number 102000021458

Relevant identified uses of the substance or mixture and uses advised against

Use Cleaner

Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada

Responsible Department Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577

Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

Serious eye damage: Category 1

Skin corrosion: Category 1B

Corrosive to metals: Category 1

Health hazards not otherwise classified: Category 1

Labelling in accordance with Part 3 of the Hazardous Products Regulations



Signal word: Danger

Hazard statements

Causes severe skin burns and eye damage.

May be corrosive to metals.

Causes severe damage to the respiratory tract

Precautionary statements

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Wear protective gloves/ protective clothing/ eye protection/ face protection.
Do not breathe mist.
Wash thoroughly after handling.
Keep only in original container.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor/ physician.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
Wash contaminated clothing before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Specific treatment (see supplemental first aid instructions on this label).
Absorb spillage to prevent material damage.
Store locked up.
Store in corrosive resistant container with a resistant inner liner.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)
No physical hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Ammonia, aqueous solution	1336-21-6	7.0

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

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Most important symptoms and effects, both acute and delayed

Symptoms	Symptoms may be delayed. The following symptoms may occur:, corrosive effects, Burns on skin and mucosal tissues, Gastro-intestinal irritation, Irritation, Conjunctivitis, Nausea, Vomiting, Pulmonary oedema, Pain
Indication of any immediate medical attention and special treatment needed	
Risks	Risk of pneumonia. Risk of pulmonary oedema. Risk of respiratory disorders. Risk of serious damage to the lungs (by inhalation).
Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Water spray, Dry chemical, Carbon dioxide (CO ₂)
Unsuitable	High volume water jet

Special hazards arising from the substance or mixture In the event of fire the following may be released:, Ammonia, Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x)

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing. In the event of fire and/or explosion do not breathe fumes.

Further information Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point No data available

Auto-ignition temperature 651 °C / 1203.8 °F

Lower explosion limit 16 %(V)

Upper explosion limit 25 %(V)

Explosivity No data available

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Do not breathe vapour. Remove all sources of ignition. Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations. Do not use bleach or other chlorination agents.

Additional advice Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle and open container in a manner as to prevent spillage. Avoid contact with skin, eyes and clothing. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

Advice on protection against fire and explosion In use, may form flammable/explosive vapour-air mixture. Keep away from heat and sources of ignition.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Protect from freezing. Keep away from direct sunlight.

Advice on common storage Do not store together with oxidizing agents.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Ammonia, aqueous solution	1336-21-6	25 ppm (TWA)	09 2011	CAD BC OEL
Ammonia, aqueous solution	1336-21-6	35 ppm (STEL)	09 2011	CAD BC OEL
Ammonia, aqueous solution	1336-21-6	25 ppm (TWA)	03 2011	CAD MB OEL
Ammonia, aqueous solution	1336-21-6	35 ppm (STEL)	03 2011	CAD MB OEL
Ammonia, aqueous solution	1336-21-6	25 ppm (TWA)	11 2010	CAD ON OEL
Ammonia, aqueous solution	1336-21-6	35 ppm (STEL)	11 2010	CAD ON OEL

Exposure controls

Respiratory protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection

Chemical resistant nitrile rubber gloves

Eye protection

Chemical resistant goggles must be worn.
Face-shield

Skin and body protection

Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	colourless
Physical State	Liquid
Odor	pungent irritating
Odour Threshold	2 - 50 ppm;
pH	11.4

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Vapor Pressure	258.55 hPa / 193.9 mm Hg at 25 °C 475 hPa / 356.3 mm Hg at 15.5 °C
Vapor Density (Air = 1)	0.6 at 20 °C
Density	0.97 g/cm ³ at 20 °C
Evaporation rate	No data available
Boiling Point	88 °C / 190.4 °F
Melting / Freezing Point	-6 - -5 °C / 21.2 - 23 °F
Water solubility	completely soluble
Solubility in other solvents	soluble in methanol, ethanol
Minimum Ignition Energy	No data available
Decomposition temperature	No data available
Partition coefficient: n-octanol/water	No data available
Viscosity	No data available
Flash point	No data available
Auto-ignition temperature	651 °C / 1203.8 °F
Lower explosion limit	16 %(V)
Upper explosion limit	25 %(V)
Explosivity	No data available

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition No data available

Chemical stability Stable under recommended storage conditions.

Possibility of hazardous reactions No hazardous reactions when stored and handled according to prescribed instructions.

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Conditions to avoid	Heat, flames and sparks. Extremes of temperature and direct sunlight.
Incompatible materials	Strong acids, Strong bases, Oxidizing agents, Halogenated compounds, Noble metals, Aluminium, Brass, Tin, Zinc
Hazardous decomposition products	Thermal decomposition can lead to release of: Ammonia Nitrogen oxides (NOx) Carbon oxides

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Skin contact, Inhalation, Ingestion
Immediate Effects	
Eye	Liquid or vapor may cause irritation, burns, corneal opacity.
Skin	Causes redness, swelling. Causes burns.
Ingestion	May cause burns to mouth and esophagus, nausea, vomiting, abdominal pain, chest pain. May be harmful if swallowed.
Inhalation	May cause coughing, wheezing, headache, nausea, respiratory tract irritation. May be harmful if inhaled.
Information on toxicological effects	
Acute oral toxicity	ATE (Mix) (Rat) > 2,000 mg/kg
Acute inhalation toxicity	No data available
Acute dermal toxicity	No data available
Skin irritation	corrosive
Eye irritation	Risk of serious damage to eyes.
Sensitisation	No data available

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

SAFETY DATA SHEET



FINISH AG SPRAYER CLEANER

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8/11
Revision Date: 04/23/2018
Print Date: 04/26/2018

Further information

No further toxicological information is available.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Pimephales promelas (fathead minnow)) 8.2 mg/l Exposure time: 96 h Information refers to the main component.
Toxicity to aquatic invertebrates	EC50 (Daphnia (water flea)) 0.66 mg/l Exposure time: 48 h Information refers to the main component.
Additional ecological information	No further ecological information is available.
Environmental precautions	Do not allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Dispose in accordance with all local, state/provincial and federal regulations. Do not contaminate water, food, or feed by disposal.
Contaminated packaging	Consult state and local regulations regarding the proper disposal of container. Follow advice on product label and/or leaflet.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	2672
Labels	8
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	AMMONIA SOLUTION

49CFR

UN number	2672
Class	8
Packaging group	III
Proper shipping name	AMMONIA SOLUTION (AMMONIUM HYDROXIDE)

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Print Date: 04/26/2018

RQ Reportable Quantity is reached with 14,285 lb of product.

IMDG

UN number 2672
Class 8
Packaging group III
Marine pollutant YES
Proper shipping name AMMONIA SOLUTION

IATA

UN number 2672
Class 8
Packaging group III
Environm. Hazardous Mark NO
Proper shipping name AMMONIA SOLUTION

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Further Information In accordance with TDG regulations 3.6(3) and 4.22 this product does not require marine pollutant safety marks or shipping documentation reference when transported on land by road or rail.

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

TSCA list

Ammonia, aqueous solution 1336-21-6

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

Not applicable.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

Ammonia, aqueous solution 1336-21-6 1.0%

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

Ammonia, aqueous solution 1336-21-6 CA, CT, IL, NJ

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Canadian Regulations

Canadian Domestic Substance List

Ammonia, aqueous solution 1336-21-6

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

TWA	Time weighted average
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
WHO	World health organisation
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
CAS-Nr.	Chemical Abstracts Service number
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
TDG	Transportation of Dangerous Goods
N.O.S.	Not otherwise specified
49CFR	Code of Federal Regulations, Title 49
OECD	Organization for Economic Co-operation and Development
UN	United Nations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
IARC	International Agency for Research on Cancer

NFPA 704 (National Fire Protection Association):

Health - 3 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 3 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current Canadian WHMIS standard (WHMIS 2015).

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 04/23/2018

This information is provided in good faith but without express or implied warranty. The customer assumes

SAFETY DATA SHEET



FINISH AG SPRAYER CLEANER

Version 2.0 / CDN
102000021458

11/11
Revision Date: 04/23/2018
Print Date: 04/26/2018

all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

2015-6281
2017-03-30

Container label

GROUP	3	FUNGICIDE
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FITNESS
FUNGICIDE

COMMERCIAL

Emulsifiable concentrate for broad-spectrum disease control in: Wheat, Barley, Oats, Canola, Corn, Soybeans (grown for seed), Dry Edible Beans, Canary Seed (suppression of Septoria Leaf Mottle), Peaches, Nectarines, Plums, Sweet Cherries, Sour Cherries, Apricots, Highbush and Lowbush Blueberries, Saskatoon Berries, Cranberries, Caneberries, Strawberries, Rutabagas, Asparagus, Western Red Cedar, and Kentucky Bluegrass (grown for seed).

FOR SALE FOR USE ON TIMOTHY HAY IN THE PRAIRIE PROVINCES ONLY.

GUARANTEE:

Propiconazole..... 418 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

REGISTRATION NO.: 32639
PEST CONTROL PRODUCTS ACT

WARNING



POISON

EYE IRRITANT

Net Contents: 1 – 1000 L

LOVELAND PRODUCTS CANADA INC.
789 Donnybrook Drive Dorchester, Ontario N0L 1G5
Product inquiries: 1-800-328-4678

IN CASE OF EMERGENCY DUE TO A MAJOR SPILL, FIRE OR POISONING
INVOLVING THIS PRODUCT CALL DAY OR NIGHT, 1-800-561-8273

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID:

Contains petroleum distillates at greater than 10%. DO NOT induce vomiting. Contact a poison control centre or a physician, taking the labelled container with you.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin IMMEDIATELY with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor IMMEDIATELY for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

There is no specific antidote for this product. Apply symptomatic therapy. This product contains PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia.

PRECAUTIONS:

KEEP OUT OF THE REACH OF CHILDREN. Harmful or fatal if swallowed. Causes eye irritation. DO NOT get in eyes.

For all uses of FITNESS Fungicide, wear long pants, a long-sleeve shirt, chemical resistant footwear, socks, overalls and chemical resistant gloves during mixing/loading, application, clean-up and repair activities. Wear protective goggles or face shield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used.

Do not eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separately from other laundry before reuse. Do not contaminate food or feed.

DO NOT allow entry into treated area until dry or for 12 hours; whichever is greater, following application. See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

NOTE: Do not graze animals on green crops treated with FITNESS Fungicide. This product contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE:

To prevent contamination, store this product away from food or feed.

DISPOSAL

DISPOSAL OF UNUSED, UNWANTED PRODUCT:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

CONTAINER DISPOSAL:

For recyclable containers: DO NOT reuse this container for any other purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms and non-target terrestrial plants. To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application of this product when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. The use of FITNESS Fungicide may result in contamination of groundwater, particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland. Observe buffer zones specified under DIRECTIONS FOR USE.

Pamphlet label

GROUP	3	FUNGICIDE
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FITNESS
FUNGICIDE

COMMERCIAL

Emulsifiable concentrate for broad-spectrum disease control in: Wheat, Barley, Oats, Canola, Corn, Soybeans (grown for seed), Dry Edible Beans, Canary Seed (suppression of Septoria Leaf Mottle), Peaches, Nectarines, Plums, Sweet Cherries, Sour Cherries, Apricots, Highbush and Lowbush Blueberries, Saskatoon Berries, Cranberries, Caneberries, Strawberries, Rutabagas, Asparagus, Western Red Cedar, and Kentucky Bluegrass Grown for Seed.

FOR SALE FOR USE ON TIMOTHY HAY IN THE PRAIRIE PROVINCES ONLY.

GUARANTEE:

Propiconazole..... 418 g/L

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EYE IRRITANT

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NOTICE TO USER:

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FIRST AID:

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If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin IMMEDIATELY with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor IMMEDIATELY for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

There is no specific antidote for this product. Apply symptomatic therapy. This product contains PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia.

PRECAUTIONS:

KEEP OUT OF THE REACH OF CHILDREN. Harmful or fatal if swallowed. Causes eye irritation. DO NOT get in eyes.

For all uses of FITNESS Fungicide, wear long pants, a long-sleeve shirt, chemical resistant footwear, socks, overalls and chemical resistant gloves during mixing/loading, application, clean-up and repair activities. Wear protective goggles or face shield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used.

Do not eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separately from other laundry before reuse. Do not contaminate food or feed.

DO NOT allow entry into treated area until dry or for 12 hours; whichever is greater, following application. See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

NOTE: Do not graze animals on green crops treated with FITNESS Fungicide This product contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web-site at www.croplife.ca.

STORAGE:

To prevent contamination, store this product away from food or feed.

DISPOSAL

DISPOSAL OF UNUSED, UNWANTED PRODUCT:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

CONTAINER DISPOSAL:

For recyclable containers: DO NOT reuse this container for any other purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms and non-target terrestrial plants. To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application of this product when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the

edge of the water body. The use of FITNESS Fungicide may result in contamination of groundwater, particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland. Observe buffer zones specified under DIRECTIONS FOR USE.

DIRECTIONS FOR USE:

This product is not to be used around homes or other residential areas such as parks, school grounds, or playing fields. It is not for use by homeowners or other unlicensed users.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use this product to control aquatic pests. **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

DO NOT use in greenhouses.

DO NOT allow entry into treated area until dry or for 12 hours; whichever is greater, following application. See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

To minimize surface water contamination when used on cranberries, all effluent water must be impounded and released only when levels of the active ingredient are $\leq 850 \mu\text{g a.i./L}$.

NOTE: Do not graze animals on green crops treated with FITNESS Fungicide.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the ground.

Airblast application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing or rotor span.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial Habitat
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer*	Rutabagas, cranberries, strawberries, asparagus, Kentucky bluegrass, Western cedar, Beans, soybeans, corn, wheat, oats, canary seed, canola, barley , Timothy Hay		1	0	1	1	1
Airblast	Cherries	Early Growth Stage	5	0	10	3	10
		Late Growth Stage	2	0	4	2	4
	Blueberries, apricots, nectarines, peaches, plums, Saskatoon berries, Caneberries	Early Growth Stage	4	0	5	2	5
		Late Growth Stage	2	0	3	1	3
Aerial	beans, corn, oats, wheat, barley, blueberries, Kentucky bluegrass	Fixed Wing	1	0	3	1	20
		Rotary wing	1	0	1	1	20

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud or curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where the individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

GENERAL INFORMATION:

Introduction: FITNESS Fungicide is a broad-spectrum systemic fungicide for control of a wide range of diseases on certain crops (see APPLICATION INSTRUCTIONS section). FITNESS Fungicide may be used in conjunction with integrated pest management practices (See PRODUCT SPECIFIC PRECAUTIONS).

Factors Affecting FITNESS Fungicide Performance: FITNESS Fungicide should be applied as a preventative disease control measure. Established diseases are more difficult to control and may have already reduced crop vigour.

If rainfall occurs within one hour of application, reapplication is necessary.

AERIAL APPLICATION:

DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. High humidity and low temperatures (10 – 20°C) allow for a better deposition of spray droplets.

SPRAYER AND APPLICATION INFORMATION:

The performance of this product depends on correct application. Follow the guidelines given below for optimal application of FITNESS Fungicide.

Sprayer Information:

	GROUND APPLICATION	AERIAL APPLICATION
Spray Volume	Minimum 200 L of water per hectare	40 - 50 L of water per hectare
Spray Pressure	200 - 300 kPa	100 - 200 kPa
Nozzle Type	110° Flat Fan (XR11004, 4110-20)	Flat Fan 6510-6515 or Hollow Cone (D8-45)
Droplet Size	Medium Spray (300 - 400 microns VMD)	Medium Spray (350 - 400 microns VMD)
Ground Speed	10 km/h	n/a
Nozzle Angle	90° (straight down)	90° (straight down)
Boom Height	40-50 cm above the crop canopy	2-3 m above the crop canopy

Ground Application:

Mixing and Spraying Instructions:

- Spray equipment should be thoroughly flushed with clean water before mixing FITNESS Fungicide. Fill spray tank 1/2 full with clean water. Engage gentle agitation.
- Add the required amount of FITNESS Fungicide and agitate thoroughly.
- Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tank mix partner.
- Complete filling the spray tank with water, maintaining agitation during mixing and spraying operations.
- Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Aerial Application:

Mixing and Spraying Instructions:

- Spray equipment should be thoroughly flushed with clean water before mixing FITNESS Fungicide.
- Fill pre-mix tank 1/2 full with clean water. Engage gentle agitation.
- Add the required amount of FITNESS Fungicide and agitate thoroughly.
- Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tank mix partner.
- Complete filling the premix tank with water.
- Maintain gentle agitation during mixing.
- Transfer the premix contents into the aircraft spray tank.
- Maintain sufficient agitation during the mixing and spraying operation to ensure FITNESS Fungicide remains in suspension.
- Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for a specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

AERIAL APPLICATION USE PRECAUTIONS:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application, as outlined in the *National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides*. Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Coarse sprays are less likely to drift; therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty.

AERIAL APPLICATION OPERATOR PRECAUTIONS:

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application. The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label. All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

PRODUCT SPECIFIC PRECAUTIONS:

Read and understand the entire label before opening this product. If you have questions call the manufacturer at 1-204-233-3461 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this specific product must meet and/or conform to the following:

- Apply the recommended rate in a minimum spray volume of 40 litres per hectare.
- DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application.
- High humidity and low temperatures (10 – 20 ° C) allow for a better deposition of spray droplets.

Fertilizer:

Mixing and Spraying Instructions:

If desired, small amounts of nitrogen may be applied with FITNESS Fungicide. The appropriate amount of urea can be dissolved in water and added to the spray tank before adding FITNESS Fungicide. The rate of actual nitrogen must not exceed 10 kg/ha.

CAUTION: Excessive nitrogen concentrations may injure the crop.

NOTE: DO NOT add nitrogen when tank-mixing FITNESS Fungicide with a herbicide.

Tank mixing:

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact LOVELAND PRODUCTS CANADA INC. at 1-800-328-4678 for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by LOVELAND PRODUCTS CANADA INC.

APPLICATION INSTRUCTIONS:

WHEAT, BARLEY AND OATS SPRAY SCHEDULE

INSTRUCTIONS FOR USE:

Apply FITNESS Fungicide at the very early stages of disease. This could occur anytime during tillering or stem elongation. Typically, an application from the beginning of stem elongation up to flag leaf emergence is required. FITNESS Fungicide lasts about three weeks in the plant. If conditions favourable to disease continue after this length of time, another application will be necessary to maintain control. The second spray is usually applied at the time of head emergence. In most cases, this second application is essential to maintain control of the *Septoria* disease complex.

LAST APPLICATION MUST BE MADE PRIOR TO 45 DAYS BEFORE HARVEST (45 day PHI).

CROP/DISEASES	WHEAT: Septoria Leaf spot (<i>Septoria</i> sp.), Tan Spot (<i>Pyrenophora tritici-repentis</i>) SPRING BARLEY: Net Blotch (<i>Drechslera teres</i>)
RATE/HA	150 - 300 mL
EARLY Application	At G.S. 12-23 (as early as the two leaf stage). For early season disease suppression, use the lower rate for suppression under normal field conditions. Use the higher rate for control if there is a history of high disease pressures in the field and/or field conditions favour disease development.
LATER Application	At the first sign of disease (G.S. 29-37) or before head is half emerged (G.S. 49- 55). Apply only the high rate on any application from G.S. 29-55.
MAXIMUM NUMBER OF APPLICATIONS PER SEASON	2
CROP/DISEASES	WHEAT: Septoria Leaf Spot and Glume Blotch (<i>Septoria</i> sp.), Powdery Mildew (<i>Erysiphe graminis</i>), Leaf and Stem Rust (<i>Puccinia recondita</i> , <i>P. graminis</i>), Tan Spot (<i>Pyrenophora tritici-repentis</i>), Stripe Rust (<i>P. striiformis</i>) SPRING BARLEY: Net Blotch (<i>Drechslera teres</i>), Spot Blotch (<i>Cochliobolus sativus</i>), Scald (<i>Rhynchosporium secalis</i>), Powdery Mildew (<i>Erysiphe graminis</i>), Septoria Leaf Spot (<i>Septoria</i> sp.), Leaf and Stem Rust (<i>Puccinia hordei</i> , <i>P. graminis</i>) OATS: Septoria Leaf Blotch (<i>Septoria</i> sp.), Crown Rust (<i>P. coronata</i>)
RATE/HA	300 mL
EARLY Application	At the first sign of disease, usually at the beginning of stem elongation (G.S. 29- 37).
LATER Application	Before head is half emerged (G.S. 49-55).

HERBICIDE TANK-MIXING - WHEAT & BARLEY:

FITNESS Fungicide can be tank-mixed with ONLY ONE of these herbicides:

2,4-D Amine
MCPA Amine
Buctril[®]M
Logic[®]M
Badge[®]

HORIZON 240EC Herbicide TANK MIX(Wheat only)
Pardner[®]
Brotex[®] 240
Bromotril[®]240 EC

Tank-mixing Precautions:

- Do not tank-mix FITNESS Fungicide with herbicides for application onto Oats.
- Weeds and crops must be at the correct stage of growth as specified in both the FITNESS Fungicide label and the tank mix partner label.

- 2,4-D Amine and MCPA Amine formulations may be applied either by ground application or aerial application; tank-mixtures of FITNESS Fungicide and Logic M /Badge/Buctril M or Brotex 240 /Bromotril 240 EC/Pardner can only be applied by ground application.
- Consult the label of the herbicide partner for a list of weeds controlled under directions for use and precautions.
- When tank mixing, adhere to the most restrictive label limitations and precautions.
- Compatibility should always be confirmed by premixing small proportional quantities of water, FITNESS Fungicide, and the tank-mix partner in advance.

NOTE: Do not graze animals on treated green crops within three days of application of FITNESS Fungicide. Do not feed straw from crops treated with herbicide tank mixes to livestock.

HERBICIDE TANK-MIXING – WHEAT ONLY:

FOR USE ONLY IN THE PRAIRIE AND PEACE RIVER, OKANAGAN AND CRESTON FLATS REGIONS OF BRITISH COLUMBIA.

FITNESS Fungicide can be tank-mixed with HORIZON 240EC Herbicide TANK MIX for disease and grassy weed control.

Tank-mixing Precautions:

- Do not apply by air.
- Consult the label of HORIZON 240EC Herbicide TANK MIX for a list of weeds controlled, directions for use and precautions.
- Apply prior to emergence of the 4th tiller (herbicide timing).

TIMOTHY SPRAY SCHEDULE

INSTRUCTIONS FOR USE: Apply FITNESS Fungicide at the very early stages of disease. If conditions favourable to disease continue after this length of time, another application will be necessary to maintain control. DO NOT APPLY BY AIR.	
DISEASE	Purple eyespot (<i>Cladosporium phlei</i>)
RATE/HA	300 ml
EARLY Application	At the first sign of disease, usually at the beginning of flowering (G.S. 59-61).
LATER Application	Full flowering (G.S. 65-73).
Minimum Interval between Applications	14 days
Maximum Seasonal Application Rate	2 applications at 300 mL/ha (600 mL/ha in a season).
LAST APPLICATION MUST BE MADE PRIOR TO 14 DAYS BEFORE HARVEST (14 day PHI).	

CANOLA SPRAY SCHEDULE

INSTRUCTIONS FOR USE: control blackleg and enhance yield potential during the early stages of canola growth. The disease may reappear later in the season, but with minimal effect on yield.				
DISEASE	RATE/HA	REMARKS / TIMING		
Blackleg (<i>Leptosphaeria maculans</i>)	300 mL	Apply during the rosette stage: between 2 nd true leaf and bolting.		
		Seedling	Rosette	Bud (Bolted)
		Stage 1	Stage 2	Stage 3
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST (60 day PHI).				

TANK-MIXING – SEED CORN, FIELD CORN and SWEET CORN

FITNESS Fungicide can be tank-mixed with ONLY ONE of the following partners:

MATADOR[®] 120EC
WARRIOR[®] INSECTICIDE
RIPCORN[®]

Tank-mixing Precautions:

- DO NOT APPLY THE TANK MIX WITH WARRIOR INSECTICIDE BY AIR.
- The tank mix of FITNESS Fungicide + MATADOR 120EC or FITNESS Fungicide + RIPCORN can be applied by air and ground. Use 40 L of water per hectare when applying by air.

- Insects and crops must be at the correct stage as specified on the FITNESS Fungicide as well as MATADOR 120EC, WARRIOR INSECTICIDE and RIPCORN labels. Follow the directions for use and precautions on all labels.
- A PHI of 14 days must be respected when using these tank-mixes on field and sweet corn.
- Compatibility should always be confirmed by premixing small proportional quantities of water, FITNESS Fungicide, and the tank-mix partner in advance.

SEED CORN, FIELD CORN AND SWEET CORN SPRAY SCHEDULE

DISEASES	Rusts (<i>Puccinia</i> sp.)
RATE/HA FITNESS Fungicide alone	300 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR 120 EC or 83 mL WARRIOR INSECTICIDE or 175 mL RIPCORN
REMARKS	Apply 300 mL/ha of FITNESS Fungicide when rust pustules first appear. Under severe disease pressure, make a second application 14 days after. Seed corn only: under severe disease pressure, make a third application 14 days after. DO NOT apply the tank mix with WARRIOR Insecticide by air.
DISEASES	Northern Corn Leaf Blight (<i>Exserohilum turcicum</i>) Southern Corn Leaf Blight (<i>Bipolaris maydis</i>) Helminthosporium Leaf Spot (<i>Bipolaris zeicola</i>)
RATE/HA FITNESS Fungicide alone	150 - 300 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR 120EC or 83 mL WARRIOR INSECTICIDE or 175 mL RIPCORN
REMARKS	Apply 150 – 300 mL/ha of FITNESS Fungicide when disease first appears. Use the 150 mL rate if disease pressure is low. DO NOT apply the tank mix with WARRIOR INSECTICIDE by air.
DISEASES	Eye Spot (<i>Aureobasidium zeae</i>) Grey Leaf Spot (<i>Cercospora zeae-maydis</i>)
RATE/HA FITNESS Fungicide alone	300 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR 120EC or 83 mL WARRIOR INSECTICIDE or 175 mL RIPCORN
REMARKS	Apply 300 mL of FITNESS Fungicide per hectare when disease first appears. DO NOT apply the tank mix with WARRIOR INSECTICIDE by air.
A restricted entry interval of 1 day is required for workers hand-harvesting and detasseling treated corn (1 day REI).	

SOYBEANS GROWN FOR SEED SPRAY SCHEDULE

DISEASE	Frogeye Leaf Spot (<i>Cercospora</i> spp.) Aerial Web Blight (<i>Rhizoctonia solani</i>)
RATE/HA	300 - 455 mL
REMARKS	Apply 300 - 455 mL of FITNESS Fungicide per hectare, using ground application equipment only, when disease first appears. Under severe disease pressure, make a second application 14 days after the first application. Do not harvest soybeans within 50 days of the last application (50 day PHI). For use only on soybeans grown for seed. Harvested soybean seed should not be used for human food or animal feed.

CANARY SEED SPRAY SCHEDULE

DISEASE	Septoria leaf mottle (<i>Septoria triseti</i>)
RATE/HA	300 mL
REMARKS	For the suppression of Septoria leaf mottle; make one application at emergence of flag leaf; ground application only; apply in 200 L water/ha.

DRY EDIBLE BEANS SPRAY SCHEDULE (*Phaseolus* spp. includes field bean, kidney bean, lima bean (dry), navy bean, pinto bean, tepary bean; *Vigna* spp. includes adzuki bean, blackeyed pea, catjang, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean)

DISEASE	Rust (<i>Uromyces</i> sp.)
RATE/HA	300 mL
REMARKS	Apply 300 mL of FITNESS Fungicide in minimum of 200 L of water per hectare by ground application or in 40 to 50 L of water per hectare by aerial application at the first detection of disease in the field and a second application 14 to 21 days later. APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF FITNESS FUNGICIDE TO DRY EDIBLE BEANS. DO NOT APPLY WITHIN 28 DAYS OF HARVEST (28 day PHI).

**PEACHES, NECTARINES, PLUMS, SWEET & SOUR CHERRIES, AND APRICOTS
SPRAY SCHEDULE**

DISEASE	Brown Rot and Blossom Blight (<i>Monilinia fructicola</i>)
RATE/HA	300 mL
REMARKS	Apply 300 mL of FITNESS Fungicide in a minimum of 500 L of water per hectare. Make 1 st application at early bloom with a 2 nd application at 50% - 75% bloom. If disease conditions persist, make a 3 rd application at petal fall.
DISEASE	Fruit Brown Rot (<i>Monilinia fructicola</i>)
RATE/HA	300 mL
REMARKS	Apply no more than 2 applications in the 3 weeks prior to harvest. Apply 300 mL of product in a minimum of 500 L of water per hectare by ground.
DISEASE	Cherry Leaf Spot (<i>Blumeriella jaapii</i>)-sweet and sour cherries
RATE/HA	300 mL
REMARKS	Apply a maximum of 3 applications per season for control of Cherry Leaf Spot. Make the 1 st application at petal fall. In the 3 weeks prior to harvest make a 2 nd and 3 rd application at a 7- 10 day interval. Do not apply within 3 days of harvest. Apply 300 mL of product in a minimum of 500 L of water per hectare by ground.
DISEASE	Suppression of Black Knot (<i>Apiosporina morbosa</i>) (Plums and Sour Cherries ONLY)
RATE/HA	300 mL
REMARKS	Apply 300 mL of FITNESS Fungicide in a minimum of 500 L of water per hectare by ground. Make 1 st application at early bloom with a 2 nd application at 50% - 75% bloom. If disease conditions persist, make a 3 rd application at petal fall.
<p>DO NOT APPLY WITHIN 3 DAYS OF HARVEST (3 day PHI). DO NOT REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION (3 day REI). IF REQUIRED, INDIVIDUALS MAY REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION FOR SHORT TERM TASKS WHICH DO NOT REQUIRE HAND LABOUR IF AT LEAST 4 HOURS HAVE PASSED SINCE APPLICATION AND PROVIDED LONG PANTS, LONG-SLEEVED SHIRTS, AND CHEMICAL-RESISTANT GLOVES ARE WORN.</p> <p>FOR SOUR CHERRIES:</p> <p>a) It is recommended that no more than 2 consecutive applications of FITNESS Fungicide be made before switching to another fungicide with a different mode of action according to disease management practices. b) Apply a MAXIMUM of 5 APPLICATIONS PER SEASON of FITNESS Fungicide.</p>	

HIGHBUSH BLUEBERRY - SPRAY SCHEDULE

DISEASE	Mummyberry (<i>Monilinia vaccinii-corymbosi</i>)
RATE/HA	300 mL
REMARKS	Apply 1 st application at or near flower bud swelling; make a 2 nd application at leaf bud swelling. Apply by ground only, making no more than two applications per year. In BC only, apply by ground, a 3 rd application at pink bloom and a 4 th application 7 to 10 days later at early bloom, making no more than 4 applications per year. Use a minimum of 200 L of water per hectare.
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST (60 day PHI). A restricted entry interval of 5 days is required for workers hand pruning highbush blueberries (5 day REI).	

LOWBUSH BLUEBERRY - SPRAY SCHEDULE

DISEASE	Monilinia Blight (<i>Monilinia vaccnii-corymbosi</i>)
RATE/HA	300 mL
REMARKS	Apply 1 st application when flower bud scales first appear and make a 2 nd application 10 days later. Use ground application or aerial application equipment, making no more than two applications per year. Use a minimum of 200 L of water per hectare if applying by ground equipment; use 40 – 50 L of water per hectare if applying by air.
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST (60 day PHI).	

SASKATOON BERRY - SPRAY SCHEDULE

DISEASE	Entomosporium Leaf and Berry Spot (<i>Entomosporium mespili</i>) and Saskatoon Juniper Rust (<i>Gymnosporangium nelsonii</i>)
RATE/HA	300 mL
REMARKS	As a foliar spray, apply up to three applications per season. The 1 st application to occur at “white tip”, the 2 nd application at “petal fall”, and the 3 rd application at “green fruit”. Apply 300 mL in a minimum of 200 L of water per hectare by ground, applying to runoff.
LAST APPLICATION MUST BE MADE AT LEAST 38 DAYS BEFORE HARVEST (38 day PHI).	

CRANBERRY - SPRAY SCHEDULE

DISEASE	Cottonball (<i>Monilinia oxycocci</i>)
RATE/HA	300 mL
REMARKS	Apply the 1 st application at leaf bud break. Make a 2 nd application 10 – 14 days later, a 3 rd application at early bloom and a 4 th application 10 – 14 days after the 3 rd application. Make no more than four applications per year. Apply product by ground.
LAST APPLICATION MUST BE MADE AT LEAST 45 DAYS BEFORE HARVEST (45 day PHI).	

RUTABAGAS - SPRAY SCHEDULE

DISEASE	Powdery Mildew (<i>Erysiphe</i> spp.)
RATE/HA	240 mL
REMARKS	Make two applications per season with the 1 st application at 50 days after planting and the 2 nd application 20 days later. Apply to vegetative foliage. Apply 240 mL in a minimum 200 L of water per hectare by ground.
LAST APPLICATION MUST BE MADE AT LEAST 21 DAYS BEFORE HARVEST (21 day PHI).	

ASPARAGUS - SPRAY SCHEDULE

DISEASE	Rust (<i>Puccinia asparagi</i>)
RATE/HA	150 mL
REMARKS	Apply FITNESS Fungicide to asparagus ferns in Ontario and Québec only. Once harvest is complete, make the 1 st application of FITNESS Fungicide as soon as fern growth begins, followed by applications at 14 to 21 day intervals. For new, non-harvested plantings, apply FITNESS Fungicide when first sign of rust is visible, followed by applications at 14 to 21 day intervals. Apply by ground only, making no more than three applications per year. Use a minimum of 370 L of water per hectare.
LAST APPLICATION MUST BE MADE AT LEAST 8 MONTHS BEFORE HARVEST (8 Month PHI).	

WESTERN RED CEDAR - SPRAY SCHEDULE

DISEASE	Keithia Foliar Blight (<i>Didymascella thujina</i>)
RATE/HA	300 mL
REMARKS	Apply using ground application equipment every four weeks. Make a maximum of 6 applications per year. Apply 300 mL of FITNESS Fungicide in a volume of 1000 L of water per hectare by ground.

KENTUCKY BLUEGRASS FOR SEED PRODUCTION - SPRAY SCHEDULE

DISEASE	Powdery Mildew (<i>Blumeria graminis</i>)
RATE/HA	300 mL
REMARKS	Apply as a foliar spray. Make no more than 2 applications per crop year with the 1st application at pre-heading and the 2nd at 50% - 100% heading. Apply in 200 - 300 L/ha of water by ground or 40 - 50 L/ha of water by air.

CANEBERRIES - SPRAY SCHEDULE (blackberry, loganberry, raspberry (red and black), wild raspberry and cultivars, varieties and hybrids of these)

DISEASE	Yellow Rust (<i>Phragmidium rubi-idaei</i>)
RATE/HA	300 mL
REMARKS	Apply 300 mL of FITNESS Fungicide in a minimum of 500 L of water per hectare by ground application at first detection of disease in the field and a second application 14 days later.
It is recommended that no more than 2 consecutive applications of FITNESS Fungicide be made before switching to another fungicide with a different mode of action according to disease management practices.	
APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF FITNESS FUNGICIDE TO CANEBERRIES. DO NOT APPLY WITHIN 30 DAYS OF HARVEST (30 day PHI). DO NOT REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION (3 day REI). IF REQUIRED, INDIVIDUALS MAY REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION FOR SHORT TERM TASKS WHICH DO NOT REQUIRE HAND LABOUR IF AT LEAST 4 HOURS HAS PASSED SINCE APPLICATION AND PROVIDED LONG PANTS, LONG SLEEVED SHIRTS, AND CHEMICAL RESISTANT GLOVES ARE WORN.	

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Interprovincial Cooperative Ltd. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Interprovincial Cooperative Ltd. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below. Accordingly, the User assumes all risks related to performance and crop tolerance arising, and agrees to hold Interprovincial Cooperative Ltd. harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

STRAWBERRIES – SPRAY SCHEDULE

DISEASE	Leaf Spot (<i>Mycosphaerella fragariae</i>)
RATE/HA	300 mL
REMARKS	Apply 300 mL of FITNESS Fungicide per hectare by ground in enough water to ensure thorough coverage. Make 1st application when disease levels are no more than 5%. Apply FITNESS Fungicide at 10 day intervals for control of leaf spot.

It is recommended that no more than 2 consecutive applications of FITNESS Fungicide be made before switching to another fungicide with a different mode of action according to disease management practices.

APPLY A MAXIMUM OF 4 APPLICATIONS PER SEASON OF FITNESS FUNGICIDE TO STRAWBERRIES. DO NOT APPLY WITHIN 1 DAY OF HARVEST (1 day PHI).

RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, FITNESS Fungicide contains a Group 3 fungicide. Any fungal population may contain individuals naturally resistant to FITNESS Fungicide and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of FITNESS Fungicide or other Group 3 fungicides with different groups that control the same pathogens.
- Avoid application of more than the maximum number listed in the label and consecutive sprays of FITNESS Fungicide or other fungicides in the same group in a season.
- Use tank mixtures with fungicides from a different group that is effective on the target pathogen when such use is permitted.
- Fungicide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide applications.

- Monitor treated fungal populations for sign of resistance development. Notify Interprovincial Cooperative Ltd if reduced sensitivity of the pathogen to FITNESS Fungicide is suspected.
- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, if available.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and disease problems.
- For further information or to report suspected resistance, contact LOVELAND PRODUCTS CANADA INC. at : 1-800-328-4678.

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Buctril and Pardner are registered trademarks of Bayer CropScience
Ripcord is a registered trademark of BASF
Brotex and Logic, are registered trademarks of TMC distributing, used under licence.
Badge and Bromotril are registered trademarks of Makhteshim Agan of North America Inc.

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC - DAY OR NIGHT 1-800-424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

FORMULATED FOR:

LOVELAND PRODUCTS, INC.
P.O. Box 1286 • Greeley, CO 80632-1286

24-Hour Emergency Phone: 1-800-424-9300
Medical Emergencies: 1-866-944-8565
U.S. Coast Guard National Response Center: 1-800-424-8802

PRODUCT NAME: FITNESS® FUNGICIDE
CHEMICAL NAME: Propiconazole: 1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxalan-2-yl]methyl] -1H-1,2,4-triazole
CHEMICAL FAMILY: GROUP 3 FUNGICIDE
EPA REG. NO.: 34704-1031
SDS Number: 001031-13-LPI

SDS Revisions: Sections 1, 15

Date of Issue: 10/09/14

Supersedes: 05/03/13

2. HAZARDS IDENTIFICATION SUMMARY

KEEP OUT OF REACH OF CHILDREN – WARNING - AVISO – Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle (If you do not understand the label, find someone to explain it to you in detail.) Causes substantial but temporary eye injury. Harmful if swallowed. Do not get in eyes or on clothing.

This product is clear yellow colored liquid with petroleum odor. Primary routes of entry are Inhalation, eye contact and skin contact.

3. COMPOSITION, INFORMATION ON INGREDIENTS

<u>Chemical Ingredients:</u>	<u>Percentage by Weight:</u>	<u>CAS No.</u>	<u>TLV (Units)</u>
Propiconazole	41.80	60207-90-1	not listed
Inert Ingredients, including Naphthalene	58.20	91-20-3	52 mg/m ³

4. FIRST AID MEASURES

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If swallowed: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-866-944-8565. Have the product label with you when calling a poison control center or doctor, or going for treatment.

NOTE TO PHYSICIAN: Contains petroleum distillate. Vomiting may cause aspiration pneumonia. There is no specific antidote.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F/Test Method): 148.1°F / 64.5°C (TCC)

FLAMMABLE LIMITS (LFL & UFL): None established

EXTINGUISHING MEDIA: Use medium appropriate to surrounding fire. Foam, CO₂, dry chemical, water spray or fog.

HAZARDOUS COMBUSTION PRODUCTS: Oxides of nitrogen, hydrogen chloride, hydrogen fluoride, and other unknown hazardous materials may be formed in a fire situation.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus with full protective clothing. Fight fire from upwind and keep all non-essential personnel out of area of intense smoke.

UNUSUAL FIRE AND EXPLOSION HAZARDS: If water is used to fight fire and/or cool containers, contain runoff, using dikes to prevent contamination of water supplies.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Contain spill and absorb with suitable absorbent, sweep up material and transfer to containers for possible land application according to label use or for proper disposal. Wash spill area with water containing strong detergent, absorb and sweep up as above. Check local, state and federal regulations for proper disposal.

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

7. HANDLING AND STORAGE

HANDLING: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

STORAGE: Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup and disposal of wastes. Do not use, pour, spill or store near heat or open flame. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets with requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

RESPIRATORY PROTECTION: Not normally required, if vapors or mists exceed acceptable levels, wear a MSHA/NIOSH approved pesticide respirator.

EYE PROTECTION: Chemical goggles or shielded safety glasses.

SKIN PROTECTION: Wear protective clothing: long-sleeved shirts and pants, chemical resistant footwear plus socks. Wear rubber or chemical-resistant gloves.

	OSHA PEL 8 hr TWA	ACGIH TLV-TWA
Naphthalene	10 ppm (skin)	10 ppm (skin)

Personal Protective Equipment: Applicators and other handlers must wear: long sleeved shirt and long pants, chemical resistant gloves (such as barrier laminate or Viton®), shoes plus socks, and protective eyewear. Discard clothing and other absorbent material that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Clear yellow colored liquid with petroleum odor.	SOLUBILITY: Emulsifies
SPECIFIC GRAVITY (Water = 1): 1.0389 g/ml	BULK DENSITY: 8.67 lbs/gal.
VAPOR PRESSURE: Not established	BOILING POINT: Not established
PERCENT VOLATILE (by volume): Not established	EVAPORATION RATE: Not established
Note: These physical data are typical values based on material tested but may vary from sample to sample.	
Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.	

10. STABILITY AND REACTIVITY

STABILITY: Stable

INCOMPATIBILITY: Strong bases, acids, and oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of nitrogen, hydrogen chloride, hydrogen fluoride, and other unknown hazardous materials may be formed in a fire situation.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Extreme heat or extreme cold.

11. TOXICOLOGICAL INFORMATION

Acute Oral LD₅₀ (female rat): 550 mg/kg	Acute Dermal LD₅₀ (rat): >5050 mg/kg
Eye Irritation (rabbit): Moderate irritant	Skin Irritation (rabbit): Slight irritant
Inhalation LC₅₀ (rat): >2.07 mg/L (4 HR)	Skin Sensitization (guinea pig): Not a sensitizer
Carcinogenic Potential: None listed in OSHA. For Naphthalene: NTP-R (Reasonably Anticipated To Be A Human Carcinogen); ACGIH-TLV-A4 (Not Classifiable as a Human Carcinogen); IARC-2B (Possibly carcinogenic to Humans).	
Target Organs: Not established.	

12. ECOLOGICAL INFORMATION

This pesticide is toxic to fish and shrimp. Do not apply directly to water, or to areas where surface water is present, or to inter-tidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters or rinsate. Refer to product labeling for use restrictions to protect endangered species.

13. DISPOSAL CONSIDERATIONS

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER HANDLING: Non-refillable container: Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state. Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer, or contact The Agricultural Container Recycling Council (ACRC) at www.acrecycle.org. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **For packages up to 5 gallons: Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. **For packages greater than 5 gallons and less than 56 gallons: Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. **For packages greater than 56 gallons:** To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. **For refillable containers:** Refill this container with pesticide only. Do not reuse the container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

14. TRANSPORT INFORMATION

DOT Shipping Description: 119 gallons or less: NOT REGULATED BY USDOT

DOT Shipping Description: Greater than 119 gallons: NA1993, COMBUSTIBLE LIQUID, N.O.S. (PETROLEUM DISTILLATES), III, ERG GUIDE 128

U.S. Surface Freight Classification: COMPOUND, TREE OR WEED KILLING, NOI (NMFC 50320, SUB 2: CLASS: 60)

15. REGULATORY INFORMATION

NFPA & HMIS Hazard Ratings:

NFPA		HMIS			
2	Health	0	Least	2	Health
2	Flammability	1	Slight	2	Flammability
0	Instability	2	Moderate	0	Reactivity
		3	High	B	PPE
		4	Severe		

SARA Hazard Notification/Reporting

SARA Title III Hazard Category:	Immediate	<u>Y</u>	Fire	<u>N</u>	Sudden Release of Pressure	<u>N</u>
	Delayed	<u>Y</u>	Reactive	<u>N</u>		

Reportable Quantity (RQ) under U.S. CERCLA: Naphthalene (CAS: 91-20-3) 100 lbs. (±4.3% the product).

SARA, Title III, Section 313: Propiconazole (CAS: 60207-90-1); Naphthalene (CAS: 91-20-3).

RCRA Waste Code: U165 (Naphthalene).

CA Proposition 65: **WARNING:** This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

WARNING

Causes substantial but temporary eye injury.

Harmful if swallowed.

Do not get in eyes or on clothing.

16. OTHER INFORMATION

MSDS STATUS: Sections 1 and 15 revised

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental Health and Safety

®Fitness is a registered trademark of Loveland Products Inc.

®Viton is a registered trademark of DuPont Performance Elastomers.

Disclaimer and Limitation of Liability: This data sheet was developed from information on the constituent materials identified herein and does not relate to the use of such materials in combination with any other material or process. No warranty is expressed or implied with respect to the completeness or ongoing accuracy of the information contained in this data sheet, and LOVELAND PRODUCTS, INC. disclaims all liability for reliance on such information. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.



SPRAYER CLEANER

NETTOYEUR à VAPORISATEUR

Ammonia 7%

Ammonia 7%

CAUTION
KEEP OUT OF REACH OF CHILDREN
READ LABEL BEFORE USING

MISE EN GARDE
GARDER HORS DE LA PORTÉE DES ENFANTS
LIRE L'ÉTIQUETTE AVANT L'EMPLOI

FLUSH®

EYE, SKIN & RESPIRATORY IRRITANT

- Direct contact with eyes will cause severe eye burns.
- Avoid contact with skin, may cause irritation.
- Do not inhale vapours or mists.
- May be harmful if swallowed.

PRECAUTIONS

- Wear chemical goggles and chemical resistant gloves.
- Wear a NIOSH approved respirator for mists and sprays.
- Wash thoroughly after handling.
- Keep container tightly closed.
- Avoid contact with Acids, Oxidizers & Reducing Agents.

EMERGENCIES: FOR CHEMICAL SPILL, LEAK, FIRE OR EXPOSURE CALL (800) 561-8273

Refer to Material Safety Data Sheet for further Information



FLUSH®
IRRITANT POUR LES YEUX, LA PEAU ET L'APPAREIL RESPIRATOIRE

- Le contact direct avec les yeux peut causer des brûlures sévères.
- Éviter le contact avec la peau, peut causer l'irritation.
- Ne pas respirer les vapeurs ou le brouillard.
- Peut être nuisible si avalé.

PRECAUTIONS

- Porter des lunettes chimiques et des gants résistants aux produits chimiques.
- Porter un respirateur NIOSH approuvé pour le brouillard et les buées.
- Se laver à fond après le traitement.
- Garder le contenant fermé hermétiquement.
- Éviter le contact avec des acides, les agents oxydants et les agents de réduction.

URGENCES : POUR UN DÉVERSEMENT CHIMIQUE, UNE FUITE, UN INCENDIE OU UNE EXPOSITION, COMPOSER LE (800) 561-8273

Pour plus d'information, consulter la fiche signalétique

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KEEP OUT OF REACH OF CHILDREN

GENERAL: FLUSH is a cleaning agent to be used for cleaning all pesticides from agricultural, commercial or lawn & garden spraying equipment. FLUSH does not de-activate or breakdown the pesticide. Some pesticides have specific cleanout recommendations, always refer to the pesticide label for proper cleaning instructions.

PRECAUTIONS, STORAGE and DISPOSAL

Do Not mix with chlorine bleach, the resulting gas can cause irritation to eyes, throat and lungs can cause skin and eye irritation. Avoid contact with eyes or skin. Wear appropriate protective clothing when handling. Avoid breathing vapours or mist. Use adequate ventilation. Wash thoroughly after handling. Keep container closed during storage. Do not freeze, keep in a cool, well ventilated area.

Dispose of rinse water in an approved manner, DO NOT clean equipment near desirable vegetation, wells or other water sources.

GARDER HORS DE LA PORTÉE DES ENFANTS.

GÉNÉRAL: FLUSH est un agent nettoyant à utiliser pour le nettoyage de tous les équipements de vaporisation de pesticides agricoles, commerciaux ou horticoles. Flush ne désactive ni ne dissout le pesticide. Quelques pesticides ont des recommandations spécifiques pour le nettoyage, toujours se référer à étiquette de pesticide pour les instructions adéquates de nettoyage.

MISES EN GARDE, ENTREPOSAGE ET ÉLIMINATION

NE PAS mélanger avec un agent de blanchement chloré, le gaz ainsi formé provoque une irritation des yeux de la gorge, de la peau et des poumons. Éviter d'inhaler les vapeurs ou inhalation. Utiliser une ventilation adéquate. Bien se laver après le manipulation. Garder le contenant fermé durant l'entreposage. Protéger contre le gel; entreposer dans un endroit frais et bien aéré.

Éliminer les eaux de rinçage d'une façon approuvée, NE PAS nettoyer l'équipement près de végétation, puits ou autres sources d'eau.



Manufactured for and Distributed by / Fabriqué pour et Distribué par :
LOVELAND PRODUCTS CANADA INC.
789 Donnybrook Drive • Dorchester, Ontario N0L 1G5
Product inquiries/ Renseignements sur les produits: 1-800-328-4678

L1611

NET CONTENTS/CONTENU NET: 10 Litres

DIRECTIONS FOR USE

1. Immediately after use, drain and flush tank, booms, hoses and nozzles with clean water.
2. While filling tank with water add 1/2 litre of FLUSH per 100 litres of water.
3. Agitate and drain system completely
4. Rinse with a small amount of plain water and drain.

FIRST AID

IF ON SKIN: Flush immediately and thoroughly for 15 minutes, while removing contaminated clothing. Get medical attention if irritation persists.

IF IN EYES: Wash for 15 minutes with plenty of water, then seek medical attention.

IF SWALLOWED: Do not induce vomiting. Give 1 to 2 glasses of water or milk. Contact a physician or poison control centre.

INHALATION: Remove from exposure, treat symptomatically. Get medical attention if necessary.

WARRANTY DISCLAIMER AND NOTICE

THE DIRECTIONS FOR USE OF THIS PRODUCT ARE BELIEVED TO BE ADEQUATE AND SHOULD BE FOLLOWED CAREFULLY. IT IS IMPOSSIBLE TO ELIMINATE ALL RISKS INHERENTLY ASSOCIATED WITH THE USE OF THIS PRODUCT. CROP INJURY, INEFFECTIVENESS, OR OTHER UNINTENDED CONSEQUENCES MAY RESULT DUE TO SUCH FACTORS AS WEATHER CONDITIONS, PRESENCE OR ABSENCE OF OTHER MATERIALS, OR THE MANNER OF USE OR APPLICATION, ALL OF WHICH ARE BEYOND THE CONTROL OF LOVELAND PRODUCTS CANADA, INC., THE MANUFACTURER OR SELLER.

THE PRODUCTS SOLD TO YOU ARE FURNISHED "AS IS" BY LOVELAND PRODUCTS CANADA, INC., THE MANUFACTURER OR SELLER, AND ARE SUBJECT ONLY TO THE MANUFACTURER'S WARRANTIES, IF ANY, WHICH APPEAR ON THE LABELS TO THE PRODUCTS SOLD TO YOU. EXCEPT AS EXPRESSLY PROVIDED HEREIN, LOVELAND PRODUCTS CANADA, INC., THE MANUFACTURER OR SELLER MAKES NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD OR USE OF THE PRODUCT, INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE. EXCEPT AS EXPRESSLY STATED HEREIN, LOVELAND PRODUCTS CANADA, INC., THE MANUFACTURER OR SELLER MAKES NO WARRANTY OF RESULTS TO BE OBTAINED BY USE OF THE PRODUCT. BUYER'S OR USER'S EXCLUSIVE REMEDY, AND LOVELAND PRODUCTS CANADA, INC.'S, THE MANUFACTURER'S OR SELLER'S TOTAL LIABILITY, SHALL BE LIMITED TO DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT. NO AGENT OR EMPLOYEE OF LOVELAND PRODUCTS CANADA, INC. OR SELLER IS AUTHORIZED TO AMEND THE TERMS OF THIS WARRANTY DISCLAIMER OR THE PRODUCT'S LABEL OR TO MAKE A REPRESENTATION OR RECOMMENDATION DIFFERENT FROM OR INCONSISTENT WITH THE LABEL OF THIS PRODUCT. IN NO EVENT SHALL LOVELAND PRODUCTS CANADA, INC., THE MANUFACTURER OR SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE, HANDLING, APPLICATION, STORAGE OR DISPOSAL OF THIS PRODUCT OR FOR DAMAGES IN THE NATURE OF PENALTIES AND THE BUYER AND USER WAIVE ANY RIGHT THEY MAY HAVE TO SUCH DAMAGES.

MODE D'EMPLOI

1. Immédiatement après l'usage, bien rincer le réservoir, les barres, les tuyaux et le embouts avec de l'eau propre et vider.
2. Durant le remplissage du réservoir avec de l'eau, ajouter 0,5 L de Flush par 100 L d'eau.
3. Bien agiter et vider le système complètement.
4. Rincer avec une petite quantité d'eau et vider.

PREMIERS SOINS

EN CAS DE CONTACT AVEC LA PEAU: Bien rincer immédiatement pendant 15 minutes, tout en enlevant les vêtements souillés. Obtenir des soins médicaux.

EN CAS DE CONTACT AVEC LES YEUX: Rincer abondamment à l'eau courante pendant au moins 15 minutes. Obtenir des soins médicaux.

EN CAS D'INGESTION: NE PAS faire vomir la victime. Donner 1 à 2 verres d'eau ou de lait. Obtenir des soins médicaux ou contacter un centre antipoison.

EN CAS D'INHALATION: Sortir la victime de la zone d'exposition et la traiter selon les symptômes. Obtenir de soins médicaux, si nécessaire.

AVIS À L'USAGER: Ce produit anti-parasitaire doit être employé strictement selon le mode d'emploi qui figure sur la présente étiquette.

AVIS À L'ACHETEUR: La garantie accordée par le vendeur se limite aux conditions énoncées sur l'étiquette et, sous cette réserve, l'acheteur assume les risques corporels ou matériels découlant de l'utilisation ou de la manipulation du produit et accepte cette condition.

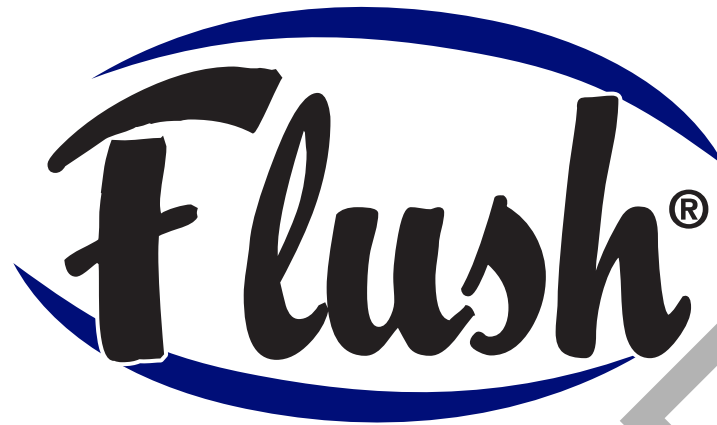
EXONÉRATION DE GARANTIE ET AVIS

LE MODE D'EMPLOI POUR CE PRODUIT EST CONSIDÉRÉ COMME APPROPRIÉ ET IL FAUT S'Y CONFORMER ATTENTIVEMENT. IL EST IMPOSSIBLE D'ÉLIMINER TOUS LES RISQUES INHÉRENTS ASSOCIÉS À L'UTILISATION DE CE PRODUIT. L'ENDOMMAGEMENT DE CULTURES, L'INEFFICACITÉ DU TRAITEMENT OU D'AUTRES CONSÉQUENCES NON INTENTIONNELLES PEUVENT EN RÉSULTER À CAUSE DE FACTEURS TELS QUE LES CONDITIONS ATMOSPHÉRIQUES, LA PRÉSENCE OU L'ABSENCE D'AUTRES MATIÈRES OU BIEN LA MÉTHODE D'UTILISATION OU D'APPLICATION, QUI SONT TOUS INDÉPENDANTS DE LA VOLONTÉ DE LOVELAND PRODUCTS CANADA, INC., DU FABRICANT ET DU VENDEUR.

LES PRODUITS QUI VOUS SONT VENDUS SONT FOURNIS "TELS QUELS" PAR LOVELAND PRODUCTS CANADA, INC., LE FABRICANT OU LE VENDEUR, ET ILS NE SONT COUVERTS QUE PAR LES GARANTIES DU FABRICANT QUI, LE CAS ÉCHÉANT, APPARAÎSSENT SUR LES ÉTIQUETTES DES PRODUITS QUI VOUS ONT ÉTÉ VENDUS. SAUF CE QUI EST EXPRESSÉMENT PRÉVU DANS LES PRÉSENTES, LOVELAND PRODUCTS CANADA, INC., LE FABRICANT ET LE VENDEUR N'OFFRENT AUCUNE GARANTIE ET NE FONT AUCUNE REPRÉSENTATION DE QUELQUE NATURE QUE CE SOIT À L'ACHETEUR OU À L'UTILISATEUR, DE FAÇON EXPLICITE OU IMPLICITE, OU PAR USAGE DU COMMERCE, STATUTAIRE OU AUTREMENT, CONCERNANT LE PRODUIT VENDU OU SON UTILISATION, Y COMPRIS, MAIS SANS S'Y LIMITER, SA QUALITÉ MARCHANDE, SON ADAPTATION À UN USAGE PARTICULIER ET SON ACCEPTABILITÉ POUR UN USAGE COMMERCIAL.

PARTICULIER. SAUF CE QUI EST EXPRESSÉMENT STIPULÉ DANS LES PRÉSENTES, LOVELAND PRODUCTS CANADA, INC., LE FABRICANT ET LE VENDEUR N'OFFRENT AUCUNE GARANTIE QUANT AUX RÉSULTATS QU'ON POURRAIT OBTENIR EN SE SERVANT DU PRODUIT. LE SEUL RECOURS DE L'ACHETEUR OU DE L'UTILISATEUR, AINSI QUE LA SEULE RESPONSABILITÉ POSSIBLE DE LOVELAND PRODUCTS CANADA, INC., DU FABRICANT ET DU VENDEUR, SE LIMITERA À DES DOMMAGES-INTÉRÊTS NE DÉPASSANT PAS LE COÛT DU PRODUIT. AUCUN AGENT DE LOVELAND PRODUCTS CANADA, INC. OU DU VENDEUR N'EST AUTORISÉ À MODIFIER LES MODALITÉS DE CETTE EXONÉRATION DE GARANTIE OU LE TEXTE DE L'ÉTIQUETTE DU PRODUIT, NI À FAIRE UNE REPRÉSENTATION OU UNE RECOMMANDATION QUI DIFFÈRE DE L'ÉTIQUETTE DU PRODUIT OU QUI N'EST PAS CONFORME À CETTE ÉTIQUETTE.

LOVELAND PRODUCTS CANADA, INC., LE FABRICANT ET LE VENDEUR NE SERONT EN AUCUN CAS RESPONSABLES DE DOMMAGES CONSÉCUTIFS, INDIRECTS OU SPÉCIAUX RÉSULTANT DE L'EMPLOI, DE LA MANUTENTION, DE L'APPLICATION, DE L'ENTREPOSAGE OU DE L'ÉLIMINATION DE CE PRODUIT, NI DE DOMMAGES SE TRADUISANT PAR DES PÉNALITÉS, ET L'ACHETEUR ET L'UTILISATEUR DU PRODUIT RENONCENT À TOUS LES DROITS QU'ILS POURRAIENT AVOIR À CET ÉGARD.



SPRAYER CLEANER

Ammonia 7%

CAUTION

KEEP OUT OF REACH OF CHILDREN
READ LABEL BEFORE USING

NETTOYEUR à VAPORISATEUR

Ammonia 7%

MISE EN GARDE

GARDER HORS DE LA PORTÉE DES ENFANTS
LIRE L'ÉTIQUETTE AVANT L'EMPLOI

FLUSH®

EYE, SKIN & RESPIRATORY IRRITANT

- Direct contact with eyes will cause severe eye burns.
- Avoid contact with skin, may cause irritation.
- Do not inhale vapours or mists.
- May be harmful if swallowed.

PRECAUTIONS

- Wear chemical goggles and chemical resistant gloves.
- Wear a NIOSH approved respirator for mists and sprays.
- Wash thoroughly after handling.
- Keep container tightly closed.
- Avoid contact with Acids, Oxidizers & Reducing Agents.

EMERGENCIES: FOR CHEMICAL SPILL, LEAK, FIRE OR EXPOSURE CALL (800) 561-8273

Refer to Material Safety Data Sheet for further Information



IRRITANT POUR LES YEUX, LA PEAU ET L'APPAREIL RESPIRATOIRE

- Le contact direct avec les yeux peut causer des brûlures sévères.
- Éviter le contact avec la peau, peut causer l'irritation.
- Ne pas respirer les vapeurs ou le brouillard.

- Peut être nuisible si avalé.

PRÉCAUTIONS

- Porter des lunettes chimiques et des gants résistants aux produits chimiques.
- Porter un respirateur NIOSH approuvé pour le brouillard et les buées.
- Se laver à fond après le traitement.
- Garder le contenant fermé hermétiquement.
- Éviter le contact avec des acides, les agents oxydants et les agents de réduction.

URGENCES : POUR UN DÉVERSEMENT CHIMIQUE, UNE FUITE, UN INCENDIE OU UNE EXPOSITION, COMPOSER LE (800) 561-8273

Pour plus d'information, consulter la fiche signalétique

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NET CONTENTS/CONTENU NET: 2 x 10 Litres



Manufactured for and Distributed by / Fabriqué pour et Distribué par :
LOVELAND PRODUCTS CANADA INC.
789 Donnybrook Drive • Dorchester, Ontario N0L 1G5
Product inquiries/ Renseignements sur les produits: 1-800-328-4678

SAFETY DATA SHEET

SDS REVISIONS: ALL SECTIONS DATE OF ISSUE: 11/30/2018

FLUSH

SUPERSEDES: 09/14/2015

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product Name FLUSH

Other means of identification

Product Code ADJ-0007
Document 1000218749
Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Spray Cleaner.
Uses advised against No information available

Details of the supplier of the safety data sheet

Manufacturer Address
 LOVELAND PRODUCTS CANADA, INC.
 789 Donnybrook Drive
 Dorchester, Ontario N0L 1G5

Emergency telephone number

Company Phone Number 1-800-328-4678
Emergency Telephone Chemtrec 1-800-424-9300
 1-800-561-8273

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4 - (H302)
Acute toxicity - Inhalation (Gases)	Category 4 - (H332)
Acute toxicity - Inhalation (Dusts/Mists)	Category 4 - (H332)
Skin corrosion/irritation	Category 1 Sub-category B - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)

Label elements



Signal word

DANGER

Hazard statements

H314 - Causes severe skin burns and eye damage
 H332 - Harmful if inhaled

Precautionary Statements - Prevention

P264 - Wash face, hands and any exposed skin thoroughly after handling
 P270 - Do not eat, drink or smoke when using this product
 P271 - Use only outdoors or in a well-ventilated area



SAFETY DATA SHEET

FLUSH

SDS REVISIONS: ALL SECTIONS DATE OF ISSUE: 11/30/2018

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P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P280 - Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor/physician

P312 - Call a POISON CENTER or doctor/physician if you feel unwell

P330 - Rinse mouth

P331 - Do NOT induce vomiting

P363 - Wash contaminated clothing before reuse

Precautionary Statements - Storage

P405 - Store locked up

Precautionary Statements - Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical Name	CAS No	Weight-%	GHS Classification	Trade Secret
Ammonia	7664-41-7	10 - 30	Acute Tox. 3 (H331) Skin Corr. 1B (H314) Aquatic Acute 1 (H400) Flam. Gas 2 (H221) Press. Gas	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.
OSHA Hazard Communication 29 CFR 1910.1200



SAFETY DATA SHEET

SDS REVISIONS: ALL SECTIONS DATE OF ISSUE: 11/30/2018

FLUSH
SUPERSEDES: 09/14/2015

4. FIRST AID MEASURES

Description of first aid measures

General advice	Get medical attention if symptoms occur.
Eye contact	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Skin contact	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Inhalation	Remove to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferable by mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
Ingestion	Call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.
Self-protection of the first aider	Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed. For a medical emergency involving this product call: 1-800-561-8273. Take container, label or product name with you when seeking medical attention.

Note to physicians No specific antidote. Treat symptomatically.

Antidotes No data available

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing agent suitable for type of surrounding fire, Use CO₂, dry chemical, or foam

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective gear should be worn in fighting large fires involving chemicals. Use water spray to keep fire exposed containers cool. Keep people away. Isolate fire and deny unnecessary entry.



SAFETY DATA SHEET

SDS REVISIONS: ALL SECTIONS DATE OF ISSUE: 11/30/2018

FLUSH

SUPERSEDES: 09/14/2015

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Keep people away from and upwind of spill/leak.

Environmental precautions

Environmental precautions Do not allow into any sewer, on the ground or into any body of water. Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Use personal protective equipment as required. Dam up. Cover liquid spill with sand, earth or other non-combustible absorbent material. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation, especially in confined areas. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

Incompatible materials Incompatible with strong acids and bases. Incompatible with oxidizing agents.



SAFETY DATA SHEET

SDS REVISIONS: ALL SECTIONS DATE OF ISSUE: 11/30/2018

FLUSH

SUPERSEDES: 09/14/2015

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Appropriate engineering controls

Engineering Controls

Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Individual protection measures, such as personal protective equipment

Eye/face protection

Tight sealing safety goggles. Face protection shield.

Skin and body protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection

Dependent on job function. If vapors or dusts exceed acceptable levels, wear a MSHA/NIOSH approved air-purifying respirator with any cartridges/filters approved for pesticides. If respirators are used, a program should be in place to assure compliance with 29 CFR 1910.134, the OSHA Respiratory Protection Standard. Wear a supplied air respirator if exposure concentrations are unknown.

General Hygiene Considerations

When using do not eat, drink or smoke. Wash contaminated clothing before reuse. Keep away from food, drink and animal feeding stuffs. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Take off all contaminated clothing and wash it before reuse. Wear suitable gloves and eye/face protection.



SAFETY DATA SHEET

FLUSH

SDS REVISIONS: ALL SECTIONS DATE OF ISSUE: 11/30/2018

SUPERSEDES: 09/14/2015

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Aqueous solution
Color	Yellow
Odor	Ammonia
Odor threshold	No data available

<u>Property</u>	<u>Values (Remarks - Method)</u>
pH	5.0 - 7.0 (1% solution)
Melting point / freezing point	No data available
Boiling point	No data available
Flash point	> 100 °C / > 212 °F ASTM D 93
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Flammability Limit in Air	
Upper flammability limit:	No data available
Lower flammability limit:	No data available
Vapor pressure	No data available
Vapor density	No data available
Specific Gravity	0.985 - 1.01 g/ml
Water solubility	Dispersible
Solubility in other solvents	No data available
Partition coefficient	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Dynamic viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

Other Information

VOC Content (%)	No data available
Density	0.985 - 1.01kg/L

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.



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SUPERSEDES: 09/14/2015

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Exposure to air or moisture over prolonged periods.

Incompatible materials

Incompatible with strong acids and bases. Incompatible with oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION

Acute toxicity of the formulated product:

Chemical Name	Oral LD ₅₀	Dermal LD ₅₀	Inhalation LC ₅₀
Ammonia	= 350 mg/kg (Rat)		= 2000 ppm (Rat) 4 h

Chemical Name	Skin corrosion/irritation	Eye damage/irritation	Respiratory sensitization	Skin sensitization
Ammonia 7664-41-7	Category 1			

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Chronic toxicity	Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Avoid repeated exposure. Possible risk of irreversible effects.
Target Organ Effects	Eye damage/irritation, Respiratory system, Skin.
Aspiration hazard	No information available.

Information on likely routes of exposure

Product Information	No data available
Inhalation	No data available.
Eye contact	No data available.
Skin contact	No data available.
Ingestion	No data available.



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SUPERSEDES: 09/14/2015

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Ammonia 7664-41-7	-	LC50 0.44 mg/L 96 h Cyprinus carpio LC50 0.26 - 4.6 mg/L 96 h Lepomis macrochirus LC50 1.17 mg/L 96 h Lepomis macrochirus LC50 0.73 - 2.35 mg/L 96 h Pimephales promelas LC50 5.9 mg/L 96 h Pimephales promelas LC50 1.5 mg/L 96 h Poecilia reticulata LC50 1.19 mg/L 96 h Poecilia reticulata	LC50 25.4 mg/L 48 h Daphnia magna

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes

Do not reuse containers for any purpose. Make the empty container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Do not contaminate water, food, or feed by storage or disposal. For disposal, the container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse the product container for any other purpose.

Contaminated packaging

Do not reuse container.

14. TRANSPORT INFORMATION

DOT

UN/ID no

Not regulated

Proper shipping name

Not regulated

U.S. Surface Freight Classification:

CLEANING, SCOURING OR WASHING COMPOUNDS, NOI, OTHER THAN LIQUID, (NMFC 48581; CLASS 55)



SAFETY DATA SHEET

FLUSH

SDS REVISIONS: ALL SECTIONS DATE OF ISSUE: 11/30/2018

SUPERSEDES: 09/14/2015

15. REGULATORY INFORMATION

<u>NFPA</u>	Health hazards 3	Flammability 1	Instability 0	Physical and Chemical Properties - Personal protection X	
<u>HMIS</u>	Health hazards 3	Flammability 1	Physical hazards 0		
	0 - Least	1 - Slight	2 - Moderate	3 - High	4 - Severe

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Ammonia - 7664-41-7	1.0

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ammonia 7664-41-7	100 lb	-	-	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Ammonia 7664-41-7	100 lb	100 lb	RQ 100 lb final RQ RQ 45.4 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. EPA Label Information



SAFETY DATA SHEET

FLUSH

SDS REVISIONS: ALL SECTIONS DATE OF ISSUE: 11/30/2018

SUPERSEDES: 09/14/2015

16. OTHER INFORMATION

Prepared By Product Stewardship and Regulatory Affairs

Reviewed By Safety, Health and Environment

Issue Date 11/30/2018

Revision Date 11/30/2018

Revision Note

16 SDS sections updated

FLUSH is a registered trademark of Loveland Products Canada, Inc.

Disclaimer

This safety data sheet was developed from information on the constituent materials identified herein and does not relate to the use of such materials in combination with any other material or process. No warranty is expressed or implied with respect to the completeness or ongoing accuracy of the information contained in this data sheet, and LOVELAND PRODUCTS CANADA, INC. disclaims all liability for reliance on such information. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.

End of Safety Data Sheet



GROUP	1	HERBICIDE
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FOAX HERBICIDE
Emulsifiable Concentrate

AGRICULTURAL

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER, OKANAGAN AND CRESTON FLATS REGIONS OF BRITISH COLUMBIA ONLY.

A post emergence herbicide for control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian darnel and volunteer canary seed in Spring wheat and Durum wheat.

GUARANTEE:

Clodinafop-propargyl..... 240 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING.
KEEP OUT OF REACH OF CHILDREN.

CAUTION



POISON

WARNING: EYE & SKIN IRRITANT

Warning, contains the allergen epoxidized soybean oil

REGISTRATION NO.: 31261 PEST CONTROL PRODUCTS ACT

Productierra
Edificio P.H. Centro Commercial Aventura
Piso 4, Local 414
Panama
Tel: 507 391 9136

Distributed by:

Great Northern Growers Inc.
313 2nd Ave E., Box 159
Wilkie, SK S0K 4W0
1-866-727-5226

NET CONTENTS: 1.84L, 3.68L, 4.7L, 14L, 15L, 55L, 200L, 450L, 1100L, Bulk

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

This product contains a PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING. Vomiting may cause aspiration pneumonia. Treat symptomatically for ingestion and/or skin and eye contact.

PRECAUTIONS

- CAUTION – POISON
- WARNING – EYE AND SKIN IRRITANT
- KEEP OUT OF THE REACH OF CHILDREN.
- Harmful if swallowed.
- May irritate eyes. Do not wear contact lenses when using.
- DO NOT get in eyes or on skin. Avoid contact with clothing. Wear coveralls or long sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.

- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse. Wash thoroughly with soap and water after handling. Handle and apply only as recommended on this label.
- Do not eat, drink or smoke while mixing, loading or during application.
- Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours after application.

ENVIRONMENTAL HAZARDS

This product contains aromatic petroleum distillates which are toxic to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic material such as clay).

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorized persons and animals. Store separate from food, feed, and fertilizer.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

For information on disposal of unused, unwanted product, contact the provincial regulatory authorities, manufacturer or Great Northern Growers Inc. at 1-877-727-5226. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills or call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

CONTAINER DISPOSAL:

For recyclable containers:

Do not reuse this container for any purpose. This is a recyclable container, and may be disposed of at a container collection site. For details on collection and disposal of containers contact Great Northern Growers Inc. at 1-877-727-5226. Before taking the container to the collection site:

- 1 Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2 Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

**IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL OR POISONING, CALL
613-996-6666 (collect) OR *666 (cell).**

FOAX HERBICIDE
Emulsifiable Concentrate

AGRICULTURAL

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER, OKANAGAN AND
CRESTON FLATS REGIONS OF BRITISH COLUMBIA ONLY.**

A post emergence herbicide for control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian darnel and volunteer canary seed in Spring wheat and Durum wheat.

GUARANTEE:

Clodinafop-propargyl..... 240 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING.
KEEP OUT OF REACH OF CHILDREN.

CAUTION



POISON

WARNING: EYE & SKIN IRRITANT

Warning, contains the allergen epoxidized soybean oil

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- May irritate eyes. Do not wear contact lenses when using.
- DO NOT get in eyes or on skin. Avoid contact with clothing. Wear coveralls or long sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.
- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse. Wash thoroughly with soap

- and water after handling. Handle and apply only as recommended on this label.
- Do not eat, drink or smoke while mixing, loading or during application.
 - Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours after application.

ENVIRONMENTAL HAZARDS

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To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic material such as clay).

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorized persons and animals. Store separate from food, feed, and fertilizer.

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- 2 Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL OR POISONING, CALL 613-996-6666 (collect) OR *666 (cell).

PRODUCT INFORMATION

FOAX HERBICIDE is a systemic, post-emergence herbicide for the selective control of wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, Persian darnel and volunteer canary seed in all types of Spring wheat and Durum wheat. Do not use FOAX HERBICIDE on barley, as crop injury will occur. Do not apply this product using aerial application equipment except under conditions specified on this label.

FOAX HERBICIDE is absorbed by the leaves and is rapidly translocated to the growing points of leaves and stems. Thorough coverage of the plants is essential for consistent control. Actively growing susceptible grasses stop growing within 48 hours of treatment. Depending on species, growing conditions and crop competition, leaves and growing points turn yellow within one to three weeks after application. Further colour changes and loss of vigour will be observed, followed by a browning and complete control three to five weeks after application.

Although FOAX HERBICIDE does not control broadleaf weeds, FOAX HERBICIDE can be tank-mixed with a wide range of broadleaf herbicides to provide broad spectrum weed control in wheat. See section entitled "TANK MIXES of FOAX HERBICIDE WITH BROADLEAF WEED HERBICIDES" and refer to the appropriate Tank Mix section for ground and aerial application.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic matter such as clay.)

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.

CROPS: Spring Wheat and Durum Wheat

FOAX HERBICIDE can be used on all varieties of spring wheat and Durum wheat. Observe minimum interval to harvest of 60 days after treatment.

Do not apply on barley or any crop other than Spring Wheat or Durum wheat, as crop damage will result. Do not allow spray to drift to adjacent fields seeded to crops other than spring wheat or Durum wheat.

Do not treat wheat underseeded to forages. Observe a minimum of three (3) days before grazing livestock on crops treated with FOAX HERBICIDE.

For use directions specific to application by air, please refer to sections on aerial application. For aerial application precautions, please refer to the precautions section.

WEEDS CONTROLLED: Wild Oats, Volunteer (Tame) Oats, Green Foxtail, Yellow Foxtail, Barnyard grass, Persian Darnel and Volunteer Canary Seed

TIMING OF APPLICATION:

TIMING	GROWTH STAGE	ADDITIONAL REMARKS
WILD OATS	1 to 6 leaf stage on main stem	Prior to emergence of 4th tiller
VOLUNTEER (TAME) OATS	3 to 6 leaf stage on main stem	Prior to emergence of 4th tiller
GREEN FOXTAIL AND YELLOW FOXTAIL (wild millet, pigeon grass)	1 to 5 leaf stage on main stem	For optimum control apply prior to emergence of the 3 rd tiller and while foxtail is actively growing
BARNYARD GRASS	1 to 5 leaf stage on main stem	For optimum control apply before tillering, and while barnyard grass is actively growing
PERSIAN DARNEL	1 to 5 leaf stage on main stem	For optimum control apply before tillering, and while Persian darnel is actively growing
VOLUNTEER CANARY SEED	1 to 6 leaf stage on main stem	Prior to emergence of 4th tiller
SPRING WHEAT AND DURUM WHEAT	Prior to emergence of 4th tiller	When tank-mixing with a broadleaf herbicide, always refer to the label of the broadleaf partner prior to use.

- For optimum results, apply FOAX HERBICIDE to actively growing weeds. An early application will maximize crop yields by reducing weed competition. Weeds emerging after application of FOAX HERBICIDE will not be controlled.
- Weed control following application of FOAX HERBICIDE alone, or in combination with broadleaf weed herbicides, can be reduced or delayed under stress conditions such as drought, heat, insufficient fertility, flooding or prolonged cool temperatures. Grass escapes or re-tillering may occur if application is made during prolonged stress conditions. Optimum weed control will be obtained if application of FOAX HERBICIDE is delayed until the stress conditions have ended and weeds are once again actively growing.
- FOAX HERBICIDE alone can be used 30 minutes before rainfall.
- Do not apply to crop that is stressed by conditions such as frost, low fertility, drought, flooding, disease or insect damage as crop injury may result.

RATE OF USE FOR GROUND APPLICATION:

Apply the recommended rate of FOAX HERBICIDE and the recommended rate of an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant in a minimum of 50 to 100 L of water per hectare.

<p>To control:</p> <p>WILD OATS VOLUNTEER (TAME) OATS GREEN FOXTAIL YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER CANARY SEED</p>	<p>To control:</p> <p>WILD OATS VOLUNTEER (TAME) OATS GREEN FOXTAIL YELLOW FOXTAIL BARNYARD GRASS VOLUNTEER CANARY SEED PERSIAN DARNEL</p>
<p>Rates for use with 50 L/ha water</p>	
<p>Apply:</p> <p>230 mL/ha of FOAX HERBICIDE + 400 mL/ha of (SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 50 L/ha of water (0.8% volume/volume)</p>	<p>Apply:</p> <p>290 mL/ha of FOAX HERBICIDE + 500 mL/ha of (SCORE or ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 50 L/ha of water (1.0% volume/volume)</p>
<p>Rates for use with 100 L/ha water</p>	
<p>Apply:</p> <p>230 mL/ha of FOAX HERBICIDE + 800 mL/ha of SCORE, ASSIST CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 100 L/ha of water (0.8% volume/volume)</p>	<p>Apply:</p> <p>290 mL/ha of FOAX HERBICIDE + 1 L/ha of SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 100 L/ha of water (1.0% volume/volume)</p>

NOTE: Always use an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with FOAX HERBICIDE.

RATE OF USE FOR AERIAL APPLICATION:

Apply the recommended rate of FOAX HERBICIDE and the recommended rate of an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant in a minimum of 30 L of water per hectare according to the following table:

To Control: WILD OATS	To Control: WILD OATS GREEN FOXTAIL YELLOW FOXTAIL PERSIAN DARNEL
Apply: 230 mL/ha of FOAX HERBICIDE + 240 mL/ha of SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 30 L/ha of water (0.8% volume/volume)	Apply: 290 mL/ha of FOAX HERBICIDE + 300 mL/ha of SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with 30 L/ha of water (1.0% volume/volume)

NOTE: Always use adjuvants of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant with FOAX HERBICIDE.

TANK MIXES of FOAX HERBICIDE WITH BROADLEAF WEED HERBICIDES – GROUND APPLICATION:

CROP: SPRING and DURUM WHEAT

TANK MIXES WITH BROADLEAF WEED HERBICIDES, IN SPRING WHEAT and DURUM WHEAT:

For broad spectrum control of wild oats, green foxtail and broadleaf weeds, FOAX HERBICIDE can be tank-mixed with broadleaf herbicides as described in the following tables. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, recropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions and follow the more restrictive label. When tank-mixing always add the broadleaf herbicide(s) to the spray tank first; followed by FOAX HERBICIDE, with SCORE or ASSIST, CROPOIL 83/17 ADJUVANT, or FOAX Adjuvant added last. For the appropriate rate of FOAX HERBICIDE with SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant, refer to the 'Rate of Use' section of the label.

Tank-Mix Partner	Product Rates	Crop Stage ¹
Dyvel®	1.25 L/ha	2 to 5 leaf
Refine Extra® ²	20 g/ha	2 leaf to flag leaf
Buctril® M	1.0 L/ha	2 leaf to flag leaf
Estaprop®	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Turboprop® 600	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Dichlorprop®-D	1.75 L/ha	4 leaf to early flag leaf (shot blade)
Lontrel 360 EC tank mixed with MCPA Ester (assume 500 series)	280 to 420 mL/ha tank mixed with 1.1 L/ha	3 leaf to flag leaf
Curtail™ M	2.0 L/ha	3 leaf to just before flag leaf
Thumper® EC	1.0 L/ha	2 leaf to early flag leaf
2,4-D Amine (assume 500 series) ³	840 mL to 1.1 L/ha	3 leaf to flag leaf
MCPA Amine (assume 500 series) ³	840 mL to 1.1 L/ha	3 leaf to flag leaf
MCPA Ester (assume 500 series)	840 mL to 1.1 L/ha	3 leaf to flag leaf
Pardner®	1.0 L/ha	2 leaf to flag leaf
Ally® ²	7.5 g/ha	2 leaf to flag leaf
Attain® Herbicide Tank Mix	600 mL/ha of Attain A + 1.0 L/ha of Attain B	4 leaf to flag leaf

¹ Always consult the label of the broadleaf herbicide prior to use.

² Addition of surfactants other than Score, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant is not required.

³ A reduction in control of green foxtail and wild oats may be observed when FOAX HERBICIDE is tank mixed with 2,4-D Amine and MCPA Amine.

Temporary crop injury may occur with tank-mixes under extreme weather conditions or when the crop is suffering from stress due to inadequate or abnormally high moisture level or extreme temperatures.

Do not tank-mix with any chemical additives, pesticides, or fertilizers that are not recommended on this label.

TANK MIXES OF FOAX HERBICIDE WITH BROADLEAF WEED HERBICIDES - AERIAL APPLICATION:

CROP: SPRING WHEAT and DURUM WHEAT

For broad spectrum control of wild oats, green foxtail and broadleaf weeds, FOAX HERBICIDE can be tank-mixed with Buctril M. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, recropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions and follow the more restrictive label. Use in a minimum of 30L of water per hectare.

Tank-mixes of FOAX HERBICIDE with broadleaf weed herbicides - Aerial application: When tank-mixing always add the broadleaf herbicide (Buctril M) to the spray tank first; followed by FOAX HERBICIDE, with an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant added last. For the appropriate rate of FOAX HERBICIDE with an adjuvant of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant refer to the 'Rate of Use For Aerial Application' section of the label.

Tank-Mix Partner	Product Rates	Crop Stage ¹
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Buctril M	1.0 L/ha	2 leaf to flag leaf
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1 Always consult the label of the broadleaf partner prior to use.

BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:	
		Aquatic Habitat	Terrestrial habitat
Field sprayer*	Spring wheat and durum wheat	15	0
Aerial	Spring wheat and durum wheat	72	76

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

MIXING INSTRUCTIONS - GROUND APPLICATION:

- 1 Clean spray tank and half fill with clean water. Start agitation or bypass system
- 2 If a broadleaf herbicide, insecticide or fungicide is to be used, add the product **FIRST** prior to adding FOAX HERBICIDE and agitate for 2-3 minutes.
- 3 Add correct amount of FOAX HERBICIDE.
- 4 Agitate for 2-3 minutes.
- 5 Add correct amount of either SCORE, ASSIST, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant.
- 6 Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
- 7 After any break in spraying operations, agitate thoroughly before spraying again.
- 8 **Use the spray suspension as soon as it is prepared.**
- 9 If an oil film starts to build up in the tank, drain tank and then clean with a detergent.

SPRAYING INSTRUCTIONS - GROUND APPLICATION:

- 1 FOAX HERBICIDE can be applied by ground or air. For aerial application instructions, refer to the section entitled "SPRAYING INSTRUCTIONS - AERIAL APPLICATION" which follows this section.

- 2 Water Volume: 50 to 100 litres per hectare when applied alone and a minimum of 100L/ha when tank-mixed with broadleaf herbicides
- 3 Spray Nozzles: 80° or 110° flat fan stainless steel nozzles are recommended for optimal spray coverage. Application of the spray mixture at a 45° angle in the direction of travel will result in improved spray coverage. Use 50 mesh nozzle screens. Do not use flood type nozzles, controlled droplet application equipment, spray foils or hollow cone nozzles.
- 4 Pressure: 275-310 kPa.
- 5 Apply uniformly at 6-8 km/hr and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from an over application.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Great Northern Growers Inc. at 1-877-727-5226 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

MIXING INSTRUCTIONS - AERIAL APPLICATION:

1. Fill the mixing tank 1/2 full with clean water. Start gentle agitation.
2. If a broadleaf herbicide is to be used, add the product **FIRST** prior to adding FOAX HERBICIDE and agitate for 2-3 minutes then add correct amount of FOAX HERBICIDE
3. Agitate for 2-3 minutes.
4. Add correct amount of an adjuvant of either Score, Assist, CROPOIL 83/17 ADJUVANT or FOAX Adjuvant.
5. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
6. Fill aircraft spray tank and maintain gentle agitation while spraying.
7. After any break in spraying operations, agitate thoroughly before spraying again. Do not let contents stand without agitation.
8. **Use the spray suspension as soon as it is prepared.**
9. If an oil film starts to build up in the tank, drain tank and then clean with a detergent.

SPRAYING INSTRUCTIONS - AERIAL APPLICATION:

- 1 FOAX HERBICIDE can be applied by ground or by air. For ground application instructions, refer to the section entitled "SPRAYING INSTRUCTIONS - GROUND APPLICATION" which precedes this section.
- 2 Water Volume - Aerial application: Minimum of 30 litres per hectare when applied alone or when tank mixed with Buctril M.
- 3 Ensure uniform application. To avoid uneven or overlapped application, use appropriate marking devices. Do not use human flaggers.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification, with a volume medium diameter (VMD) greater than 350 microns. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotor-span.

SPRAYER CLEAN-UP:

- 1 Thoroughly clean application equipment immediately after spraying. Ensure that all traces of the product are removed. The following recommendations are provided:
- 2 Drain and flush tank walls, boom and all hoses for ten minutes with clean water. Do not

- clean the sprayer near desirable vegetation, wells, or other water sources.
- 3 Remove the nozzles and screens and wash separately.
 - 4 Dispose of all rinsings in accordance with provincial regulations.
 - 5 If a broadleaf tank-mix partner is used, always check tank-mix partner label for any additional clean up procedures.

Resistance-Management Recommendations

For resistance management, FOAX HERBICIDE is a Group 1 herbicide. Any weed population may contain or develop plants naturally resistant to FOAX HERBICIDE and other Group 1 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of FOAX HERBICIDE or other Group 1 herbicides with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted.

Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.

Monitor treated weed populations for resistance development.

Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact the company Great Northern Growers Inc. at 1-877-727-5226 or at www.gng.ag.

NOTE TO USER:

READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the use described below were developed by persons other than Productierra and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Productierra itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance

arising, and agree to hold Productierra harmless, from any claims based on efficacy and/or phytotoxicity in connection with the use described below.

DIRECTIONS FOR USE IN THE OKANAGAN AND CRESTON FLATS REGION OF BC:

FOAX HERBICIDE can be used for the control of wild oats, green foxtail and yellow foxtail in spring wheat and durum wheat in the Okanagan and Creston Flats Regions of British Columbia. For information on crop and weed stages, rates of application, mixing and spraying instructions and precautions see the appropriate sections elsewhere on this label.

Product names marked ® or TM are registered trademarks of their respective companies.

GROUP	28	INSECTICIDE
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FORTENZA®

SEED TREATMENT INSECTICIDE

COMMERCIAL

SUSPENSION

Seed treatment insecticide for control of listed insect pests on labeled crops.

ACTIVE INGREDIENT:

Cyantraniliprole 600 g/L

Contains 1,2-benzisothiazolin-3-one at 0.037 % as a preservative.

Contains 2-bromo-2-nitropropane-1,3-diol at 0.024 % as a preservative.

CAUTION – EYE IRRITANT

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF THE REACH OF CHILDREN**

REGISTRATION NO.: **30899**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **1 L to 1050 L**

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3
Telephone: 1-877-964-3682

Special Use Restrictions

This product contains no colourant. An appropriate colourant must be added when this product is applied. Regulations pertaining to the SEEDS ACT must be strictly adhered to when using this product. Seed must be conspicuously coloured at the time of treatment.

Application to corn, canola, rapeseed and mustard (condiment or oilseed) must be completed by commercial treaters (facilities and mobile treaters) with closed transfer systems only. Closed transfer includes closed mixing, loading, calibrating, and closed treatment equipment only. No open transfer of FORTENZA® is permitted during the commercial treatment of corn, canola, rapeseed or mustard (condiment or oilseed).

In addition to above, for soybeans, on-farm seed treatment and on-farm open transfer of FORTENZA is permitted. Potato seed pieces can be treated on-farm and must use closed transfer systems.

LABEL

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IF POISONING IS SUSPECTED, call a doctor or poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

There is no specific antidote for this product if ingested. Treat symptomatically.

PRECAUTIONS

Safety Precautions:

1. Hazard to humans and domestic animals.
2. KEEP OUT OF THE REACH OF CHILDREN and domestic animals.
3. Wash hands and face after handling and before eating or smoking.
4. May irritate eyes. Avoid contact with eyes.
5. **When treating potato seed pieces:** Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks shoes and goggles during mixing, loading, application, clean-up, and repair. When handling or planting treated potato seed pieces or when working with or around equipment used to transport treated potato seed pieces, workers must wear a long-sleeved shirt, long pants, gloves, socks and boots. For good hygiene practice, it is recommended to wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested during all job activities. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. DO NOT use open

treating equipment when treating potato seed pieces. This product must be applied using a closed treatment system.

6. **When treating corn, crops from Crop Subgroup 20A, *Brassica carinata* or condiment mustard:** This treatment must be applied in a commercial seed treatment facility (or by mobile treaters) using closed transfer, including closed mixing, loading, calibrating, and closed treatment equipment. Workers (treaters, baggers, sewer, stackers, forklift drivers and cleaners) must wear a long-sleeved shirt and long pants, chemical-resistant gloves, socks and shoes. For good hygiene practice, it is recommended to wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested during all job activities.
7. **When treating soybeans:** This treatment may be applied in a commercial seed treatment facility (or by mobile treaters) or on-farm. Workers (treaters, baggers, sewer, stackers, forklift drivers and cleaners) must wear a long-sleeved shirt and long pants, chemical-resistant gloves, socks and shoes. For good hygiene practice, it is recommended to wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested during all job activities.
8. Wash personal protective equipment (PPE) after each use. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables are available, use detergent and hot water. Keep and wash PPE separately from other laundry.
9. Avoid contamination of feed and foodstuffs.
10. All bags containing treated seed for sale or use in Canada must be labelled or tagged as follows: **These seeds have been treated with the insecticide cyantraniliprole. When handling and planting treated seed, workers must wear a long sleeved shirt and long pants, chemical-resistant gloves, socks and shoes.** For good hygiene practice, it is recommended to wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested during all job activities. **Do not use for food, feed or oil processing. Store away from food and feed. Toxic to bees. Follow best management practices to help minimize dust exposure to pollinators during planting of treated seed; refer to the complete guidance "Pollinator Protection: reducing risk from treated seed" on the Health Canada website (www.healthcanada.gc.ca/pollinators).**

Environmental Precautions:

TOXIC to aquatic organisms. DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

Toxic to bees. This product is systemic and bees can be exposed to product residues in flower, leaves, pollen and/or nectar resulting from seed treatment applications. However, when this product is applied and used according to label directions, risk to bees is expected to be negligible. Follow best management practices to help minimize dust exposure to pollinators

during planting of treated seed; refer to the complete guidance “Pollinator Protection: reducing risk from treated seed” on the Health Canada website (www.healthcanada.gc.ca/pollinators).

If treated seeds are spilled outdoors or in areas accessible to birds, promptly clean up or bury to prevent ingestion.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682

STORAGE

Ideal storage temperature for the products is above freezing and below 30 °C. Repeated freeze-thawing of FORTENZA will not affect the physical integrity of the product. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application.

DECONTAMINATION AND DISPOSAL

Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. DO NOT re-use bags from treated seed to handle food or feed products.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

CONTAINER DISPOSAL:

For Refillable Containers:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For Returnable Containers:

Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

For Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.

2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (1-800-FASTMED)***

FORTENZA® is a trademark of a Syngenta Group Company.

GROUP	28	INSECTICIDE
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FORTENZA®

SEED TREATMENT INSECTICIDE

COMMERCIAL

SUSPENSION

Seed treatment insecticide for control of listed insect pests on labeled crops.

ACTIVE INGREDIENT:

Cyantraniliprole 600 g/L

Contains 1,2-benzisothiazolin-3-one at 0.037 % as a preservative.

Contains 2-bromo-2-nitropropane-1,3-diol at 0.024 % as a preservative.

CAUTION – EYE IRRITANT

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF THE REACH OF CHILDREN**

REGISTRATION NO.: **30899**
PEST CONTROL PRODUCTS ACT

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3
Telephone: 1-877-964-3682

Special Use Restrictions

This product contains no colourant. An appropriate colourant must be added when this product is applied. Regulations pertaining to the SEEDS ACT must be strictly adhered to when using this product. Seed must be conspicuously coloured at the time of treatment.

Application to corn, canola, rapeseed and mustard (condiment or oilseed) must be completed by commercial treaters (facilities and mobile treaters) with closed transfer systems only. Closed transfer includes closed mixing, loading, calibrating, and closed treatment equipment only. No open transfer of FORTENZA® is permitted during the commercial treatment of corn, canola, rapeseed or mustard (condiment or oilseed).

In addition to above, for soybeans, on-farm seed treatment and on-farm open transfer of FORTENZA is permitted. Potato seed pieces can be treated on-farm and must use closed transfer systems.

PAMPHLET

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IF POISONING IS SUSPECTED, call a doctor or poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

There is no specific antidote for this product if ingested. Treat symptomatically.

PRECAUTIONS

Safety Precautions:

1. Hazard to humans and domestic animals.
2. KEEP OUT OF THE REACH OF CHILDREN and domestic animals.
3. Wash hands and face after handling and before eating or smoking.
4. May irritate eyes. Avoid contact with eyes.
5. **When treating potato seed pieces:** Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks shoes and goggles during mixing, loading, application, clean-up, and repair. When handling or planting treated potato seed pieces or when working with or around equipment used to transport treated potato seed pieces, workers must wear a long-sleeved shirt, long pants, gloves, socks and boots. For good hygiene practice, it is recommended to wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested during all job activities. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. DO NOT use open

treating equipment when treating potato seed pieces. This product must be applied using a closed treatment system.

6. **When treating corn, crops from Crop Subgroup 20A, *Brassica carinata* or condiment mustard:** This treatment must be applied in a commercial seed treatment facility (or by mobile treaters) using closed transfer, including closed mixing, loading, calibrating, and closed treatment equipment. Workers (treaters, baggers, sewer, stackers, forklift drivers and cleaners) must wear a long-sleeved shirt and long pants, chemical-resistant gloves, socks and shoes. For good hygiene practice, it is recommended to wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested during all job activities.
7. **When treating soybeans:** This treatment may be applied in a commercial seed treatment facility (or by mobile treaters) or on-farm. Workers (treaters, baggers, sewer, stackers, forklift drivers and cleaners) must wear a long-sleeved shirt and long pants, chemical-resistant gloves, socks and shoes. For good hygiene practice, it is recommended to wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested during all job activities.
8. Wash personal protective equipment (PPE) after each use. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables are available, use detergent and hot water. Keep and wash PPE separately from other laundry.
9. Avoid contamination of feed and foodstuffs.
10. All bags containing treated seed for sale or use in Canada must be labelled or tagged as follows: **These seeds have been treated with the insecticide cyantraniliprole. When handling and planting treated seed, workers must wear a long sleeved shirt and long pants, chemical-resistant gloves, socks and shoes.** For good hygiene practice, it is recommended to wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested during all job activities. **Do not use for food, feed or oil processing. Store away from food and feed. Toxic to bees. Follow best management practices to help minimize dust exposure to pollinators during planting of treated seed; refer to the complete guidance "Pollinator Protection: reducing risk from treated seed" on the Health Canada website (www.healthcanada.gc.ca/pollinators).**

Environmental Precautions:

TOXIC to aquatic organisms. DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

Toxic to bees. This product is systemic and bees can be exposed to product residues in flower, leaves, pollen and/or nectar resulting from seed treatment applications. However, when this product is applied and used according to label directions, risk to bees is expected to be negligible. Follow best management practices to help minimize dust exposure to pollinators

during planting of treated seed; refer to the complete guidance “Pollinator Protection: reducing risk from treated seed” on the Health Canada website (www.healthcanada.gc.ca/pollinators).

If treated seeds are spilled outdoors or in areas accessible to birds, promptly clean up or bury to prevent ingestion.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682

STORAGE

Ideal storage temperature for the products is above freezing and below 30 °C. Repeated freeze-thawing of FORTENZA will not affect the physical integrity of the product. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application.

DECONTAMINATION AND DISPOSAL

Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. DO NOT re-use bags from treated seed to handle food or feed products.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

CONTAINER DISPOSAL:

For Refillable Containers:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For Returnable Containers:

Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

For Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.

2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (1-800-FASTMED)***

GENERAL INFORMATION

FORTENZA is an insecticide belonging to the chemical class of diamides. The length of control of the major insect pests will vary depending on the product use rate, insect pressure, crop growth and maturity, and soil and environmental conditions. When rate ranges are given, use the higher rate when insect pressure is expected to be high.

FORTENZA Seed Treatment provides early season reduction of feeding damage from bean leaf beetle and protection from cutworm in soybeans.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

APPLICATION METHOD:

Shake or mix well before using.

All Seed: Apply FORTENZA as a water-based slurry utilizing standard slurry seed treatment equipment that provides uniform seed coverage. Uneven or incomplete seed coverage may not give the desired level of insect control. Thoroughly mix the specified amount of FORTENZA into the required amount of water for the slurry treater and dilution rate to be used. Consult the manufacturer of the application equipment you plan to use for suitability for this application and for instructions on operation and calibration of the equipment.

Potatoes:

Cut seed is particularly vulnerable to excess moisture. Too much moisture will induce seed decay. FORTENZA has been designed to be delivered in very low volumes of liquid to ensure good coverage without increasing tuber decay. Do not add excess water to the cut seed.

Store cut seed at or below 7 °C. Temperatures above 10 °C promote soft rot in seed.

Apply only in areas with adequate ventilation or in areas that are equipped to remove mist or dust.

If soil conditions are ideal, plant the treated potatoes immediately after application; however if

soil is predicted to be cold and wet , either a) wait to cut, treat, plant until conditions are favorable or b) cut, treat and store. If cutting, treating and storing, potatoes can be treated with an inert dust to improve wound healing. Store properly until conditions improve by making sure that there is adequate cool air (7-10 °C) movement through the pile of cut seed potatoes and a relative humidity of 85-90%. Cut and treated seed should not be piled above 1.8 m in height. When transporting cut and FORTENZA treated seed make sure the seed is covered.

When treating cut seed, FORTENZA can be followed with a dust/talc treatment to improve suberization.

Avoid using liquid seed treatment on excessively sprouted seed.

Note: Treatment of highly damaged or bruised potato seed, or seed known to be of low vigor and poor quality, or potato seed that is deemed “physiologically old” may result in reduced germination and/or reduction of seed and seedling vigor and multiple stems from germination of the seed. When in doubt or if the status/condition of the potato seed tubers is unknown, then treat a small sample batch of the same potato seed load with FORTENZA using recommended rates, equipment and application procedures; before treating the total seed lot. Conduct this test on a small batch of the potato seed and observe the germination, emergence, stem count from the germinating seed. Only if the data confirms that the seed treated with FORTENZA is acceptable then proceed treating the rest of the seed load from which the sample was taken. Due to seed quality, seed condition and seed storage conditions beyond the control of Syngenta no claims are made to guarantee the germination and or performance of the potato seed tuber from treatment with FORTENZA.

Soybean, Corn, Crop Subgroup 20A, Brassica carinata and Condiment Mustard: This product contains no pigment. Users are responsible for ensuring that the treated seed, when dried and ready for bagging, has an unnatural colour. Regulations pertaining to colouration of treated seed enforced under the “Seeds Act” must be strictly adhered to when using this product.

Note: Treatment of highly mechanically scarred or damaged seed, or seed known to be of low vigor and poor quality may result in reduced germination and/or reduction of seed and seedling vigor. Treat using equipment similar to that planned for treating the total seed lot. Conduct germination tests on a small portion of the seed before committing the total seed lot to a selected seed treatment. **Due to seed quality and seed storage conditions beyond the control of Syngenta Canada Inc., no claims are made to guarantee the germination of carry-over seed.**

USE DIRECTIONS

POTATO	
CROP	Potato
PEST ¹	Colorado potato beetle
RATE	10 – 22.5 mL/100 kg seed
APPLICATION METHOD	Potato seed piece treatment
NOTES	¹ Protection provided during early to mid-season growth and development of potatoes only.
RESTRICTIONS	Do not apply any subsequent application of a Group 28 Insecticide (for example, in-furrow, soil or foliar application) following FORTENZA seed treatment.

CORN	
CROP	Corn, field, pop and sweet
PEST	Cutworm
RATE	0.125 - 0.25 mg ai/seed (50 - 100 g ai/100 kg seed or 83 - 167 mL/100 kg seed)
APPLICATION METHOD	Seed treatment
NOTES	For additional insect control, FORTENZA can be tank mixed with CRUISER® 5FS Seed Treatment Insecticide in commercial seed treatment facilities with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only. For disease control, FORTENZA can be tank mixed with APRON XL® LS, MAXIM® XL, DYNASTY® 100FS, MAXIM QUATTRO Seed Treatments and/or VIBRANCE® 500FS in commercial seed treatment facilities. Read the label directions for each product and follow the most restrictive label precautions and limitations.
RESTRICTIONS	This product contains no colourant. An appropriate colourant must be added when this product is applied. Do not apply any subsequent application of a Group 28 Insecticide (for example, in-furrow, soil or foliar application) following FORTENZA seed treatment.
CROP	Corn, field, pop and sweet
PEST	Wireworms, European Chafer and suppression of seedcorn maggot
RATE	0.25 mg ai/seed (100 g ai/100 kg seed or 167 mL/100 kg seed)
APPLICATION METHOD	Seed treatment
NOTES	For additional insect control, FORTENZA can be tank mixed with CRUISER 5FS Seed Treatment Insecticide in commercial seed treatment facilities with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only. For disease control, FORTENZA can be tank mixed with APRON XL LS, MAXIM XL, DYNASTY 100FS, MAXIM QUATTRO Seed Treatments and/or VIBRANCE 500FS in commercial seed treatment facilities. Read the label directions for each product and follow the most restrictive label precautions and limitations.
RESTRICTIONS	This product contains no colourant. An appropriate colourant must be added when this product is applied. Do not apply any subsequent application of a Group 28 Insecticide (for example, in-furrow, soil or foliar application) following FORTENZA seed treatment.

OILSEEDS	
CROP	Canola, mustard seed, rapeseed, Oilseed mustard, including <i>B. carinata</i>
PEST	Cutworm
RATE	500 mL/100 kg seed (300 g ai/100 kg seed)
APPLICATION METHOD	Seed treatment
NOTES	For additional insect and disease control, FORTENZA can be tank mixed with HELIX XTRA® Seed Treatment and/or VIBRANCE 500FS Seed Treatment in commercial seed treatment facilities. Read the label directions for each product and follow the most restrictive label precautions and limitations.
RESTRICTIONS	<p>This product contains no colourant. An appropriate colourant must be added when this product is applied.</p> <p>Do not apply any subsequent application of a Group 28 Insecticide (for example, in-furrow, soil or foliar application) following FORTENZA seed treatment.</p>
CROP	Canola, mustard seed, rapeseed, Oilseed mustard, including <i>B. carinata</i>
PEST	Flea beetles
RATE	1333 mL/100 kg seed (800 g ai/100 kg seed)
APPLICATION METHOD	Seed treatment
RESTRICTIONS	<p>This product contains no colourant. An appropriate colourant must be added when this product is applied.</p> <p>Do not apply any subsequent application of a Group 28 Insecticide (for example, in-furrow, soil or foliar application) following FORTENZA seed treatment.</p>

CONDIMENT MUSTARD	
CROP	Condiment mustard
PEST	Cutworm
RATE	500 mL/100 kg seed (300 g ai/100 kg seed)
APPLICATION METHOD	Seed treatment
NOTES	For additional insect and disease control, FORTENZA can be tank mixed with HELIX XTRA Seed Treatment and/or VIBRANCE 500FS Seed Treatment in commercial seed treatment facilities. Read the label directions for each product and follow the most restrictive label precautions and limitations.
RESTRICTIONS	<p>This product contains no colourant. An appropriate colourant must be added when this product is applied.</p> <p>Do not apply any subsequent application of a Group 28 Insecticide (for example, in-furrow, soil or foliar application) following FORTENZA seed treatment.</p>
CROP	Condiment mustard
PEST	Flea beetles
RATE	1333 mL/100 kg seed (800 g ai/100 kg seed)
APPLICATION METHOD	Seed treatment
RESTRICTIONS	<p>This product contains no colourant. An appropriate colourant must be added when this product is applied.</p> <p>Do not apply any subsequent application of a Group 28 Insecticide (for example, in-furrow, soil or foliar application) following FORTENZA seed treatment.</p>

SOYBEANS	
CROP	Soybeans
PEST	Seed corn maggot, European chafer, June beetle and Black cutworm
RATE	41.5 - 83 mL/100 kg seed (25 - 50 g ai/100 kg seed) This rate is equivalent to 0.0628 – 0.1256 µL/seed (0.0378 – 0.0757 mg ai/seed), based on a seed weight of 6600 seeds/kg.
APPLICATION METHOD	Seed treatment
NOTES	Use higher rates for higher pest pressure. FORTENZA may be mixed with APRON XL® LS, MAXIM® 480FS, DYNASTY® 100FS, APRON MAXX® RTA® or APRON MAXX RFC, VIBRANCE® 500FS and VIBRANCE MAXX RFC to control a broad spectrum of diseases. For protection from various insect pests, FORTENZA may be mixed with CRUISER® 5FS. For combined protection from labeled insect and soil- and seed-borne pathogens, FORTENZA may be mixed with CRUISER MAXX® Beans and VIBRANCE 500 FS. For protection from soybean cyst nematodes, FORTENZA may be mixed with CLARIVA™ pn. Follow all appropriate treating and use directions, precautions, etc. as specified on the respective product labels.
RESTRICTIONS	This product contains no colourant. An appropriate colourant must be added when this product is applied. Do not apply any subsequent application of a Group 28 Insecticide (for example, in-furrow, soil or foliar application) following FORTENZA seed treatment.
CROP	Soybeans
PEST	Wireworms, Bean leaf beetle*
RATE	83 mL/100 kg seed (50 g ai/100 kg seed) This rate is equivalent to 0.1256 µL/seed (0.0757 mg ai/seed), based on a seed weight of 6600 seeds/kg.
APPLICATION METHOD	Seed treatment
NOTES	FORTENZA may be mixed with APRON XL LS, MAXIM 480FS, DYNASTY 100FS, APRON MAXX RTA or APRON MAXX RFC, VIBRANCE 500FS and VIBRANCE MAXX RFC to control a broad spectrum of diseases. For protection from various insect pests, FORTENZA may be mixed with CRUISER 5FS. For combined protection from labeled insect and soil- and seed-borne pathogens, FORTENZA may be mixed with CRUISER MAXX Beans and VIBRANCE 500 FS. For protection from soybean cyst nematodes, FORTENZA may be mixed with CLARIVA pn. Follow all appropriate treating and use directions, precautions, etc. as specified on the respective product labels.
RESTRICTIONS	This product contains no colourant. An appropriate colourant must be added when this product is applied. Do not apply any subsequent application of a Group 28 Insecticide (for example, in-furrow, soil or foliar application) following FORTENZA seed treatment.

* Use for early season feeding damage of bean leaf beetle.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Rotational Restrictions

ROTATIONAL CROP RESTRICTIONS

Plant back interval	Crops
0 days	Crop Subgroup 1B (Root Vegetables, except sugar beet); Crop Subgroup 1C (Tuberous and Corm Vegetables); Crop Group 2 (Leaves of Root and Tuber Vegetables); Crop Group 3-07 (Bulb Vegetables); Crop Group 4 (Leafy Vegetables, except <i>Brassica</i> vegetables); Crop Group 5 (<i>Brassica</i> (Cole) Leafy Vegetables); Crop Group 6 (Legume Vegetables, Succulent or Dried); Crop Group 7 (Foliage of legume vegetables); Crop Group 8-09 (Fruiting Vegetables); Crop Group 9 (Cucurbit Vegetables); Crop Subgroup 13-07A (Canneberries); Crop Subgroup 13-07B (Bushberries); Crop Subgroup 13-07H (Low Growing Berries, except Strawberries); Crop Group 20 (Oilseeds); peanuts; strawberries
30 days	Crop Group 1A (Root and Tuber Vegetables); Crop Group 15 (Cereal grains); Crop Group 16 (Forage, fodder, and straw of cereal grains); Crop Group 17 (Grass forage, fodder, and hay); Crop Group 18 (Nongrass animal feeds: Forage, fodder, straw and hay)
365 days	Other crops

Resistance-Management Recommendations

For resistance management, please note that FORTENZA contains a Group 28 insecticide (cyantraniliprole, belonging to the diamide class of chemistry). Any insect population may contain individuals naturally resistant to FORTENZA and other Group 28 insecticides. The resistant individuals may dominate the insect population if this group of insecticides is used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Because resistance development cannot be predicted, the use of this product should conform to sound resistance management strategies established for the crop and use area.

To delay insecticide resistance:

Where possible, rotate the use of FORTENZA or other Group 28 insecticides with different groups that control the same pests in a field.

Use tank mixtures with miticides/insecticides from a different group when such use is permitted.

Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.

Monitor treated pest populations for resistance development. If resistance is suspected, do not reapply FORTENZA or other Group 28 insecticides.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.

For further information or to report suspected resistance, contact company representatives at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

APRON MAXX®, APRON XL®, CLARIVA™, CRUISER®, CRUISER MAXX®, DYNASTY®, FORTENZA®, HELIX RTA®, MAXIM® and RTA®, VIBRANCE® are trademarks of a Syngenta Group Company.

SECTION 1: PRODUCT INFORMATION

Product Identifier: FORTENZA®

Formulation Number: A17960B

Registration Number: 30899 (Pest Control Products Act)

Product Use: Insecticide. Seed treatment. Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

Syngenta Canada Inc.
 140 Research Lane, Research Park
 Guelph, ON N1G 4Z3

SDS prepared by: Department of Regulatory & Biological Assessment, Syngenta Canada Inc.

For further information, contact: 1-87-SYNGENTA (1-877-964-3682)

In Case of Emergency, Call: 1-800-327-8633 (FAST MED)

SECTION 2: HAZARDS IDENTIFICATION
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Classification in accordance with UN GHS Version 5.

Hazard Classification(s): Not classified under GHS.

Hazard Symbol(s): Not applicable.

Signal Word: Not applicable.

Hazard Statement(s): Not applicable.

Precautionary Statement(s):
Prevention: Not applicable.

Response: Not applicable.

Storage: Not applicable.

Disposal: Not applicable.

Other Hazards Which do not To avoid risk to human health and the environment, comply with the instructions for use.

Result in GHS Classification: Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS
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Chemical Name	Common Name	CAS Number	Average % by weight
3-bromo-1-(3-chloro-2-pyridinyl)-N-[4-cyano-2-methyl-6-[[[(methylamino)carbonyl]phenyl]-1H-pyrazole-5-carboxamide	Cyantraniliprole	736994-63-1	47.8
Poly(oxy-1,2-ethanediyl), alpha-phosphono-omega-[2,4,6-tris(1-phenylethyl)phenoxy]-	Ethoxylated polyarylphenol phosphate	90093-37-1	1 - 5
Naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	Sodium polynaphthalenesulfonate	9084-06-4	1 - 5

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Safety Data Sheet with you when calling Syngenta, a poison control centre or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [1-800-327-8633 (1-800-FASTMED)], for further information.

Eye Contact: Flush eyes with clean water, holding eyelids apart for a minimum of 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eyes. Call Syngenta, a poison control centre or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

Skin Contact: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with running water for a minimum of 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

Inhalation: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

Ingestion: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to do so. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

Most Important Symptoms/Effects, Acute and Delayed:

May cause minor eye irritation.

Indication of Immediate Medical Attention and Special Treatment:

There is no specific antidote.

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Suitable (and Unsuitable) Extinguishing Media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist. Cool closed containers exposed to fire with water spray. Do not use a solid water stream as it may scatter and spread the fire.

Specific Hazards Arising from the Product: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Special Protective Equipment and Precautions for Fire-Fighters: Wear full protective clothing and self-contained breathing apparatus. Evacuate non-essential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water run-off can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Control the spill at its source. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Use adequate ventilation and equipment and wear clothing as described in Section 8 and/or the product label.

Environmental Precautions: Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.

Methods and Materials for Containment and Cleaning Up: Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or seep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into a compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal.

SECTION 7: HANDLING AND STORAGE
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Precautions for Safe Handling: KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours, dust or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Conditions for Safe Storage, Including Any Incompatibilities: Store in original container in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Refer to the product label for specific storage recommendations, including minimum storage temperature and freeze/thaw stability. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL AND/OR ON-FARM APPLICATIONS.

Control Parameters:

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Cyantranilprole	Not established	Not established	5 mg/m ³ TWA***	No	Not established
Glycerin	15 mg/m ³ (total); 5 mg/m ³ (respirable)	10 mg/m ³ (total dust)	8 mg/m ³ TWA***; 10 mg/m ³ TWA (AB/BC/ON/QC)	No	Not established
Ethoxylated polyarylphenol phosphate	Not established	Not established	Not established	No	Not established
Sodium polynaphthalene sulfonate	Not established	Not established	Not established	No	Not established

* Recommended by Manufacturer

** Recommended by NIOSH

*** Syngenta Occupational Exposure Limit (OEL)

**** Recommended by AIHA (American Industrial Hygiene Association)

† Material listed in Ingredient Disclosure List under the Hazardous Products Act

Appropriate Engineering Controls: If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV (threshold limit value). Warehouses, production areas, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

Individual Protection Measures:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

Ingestion: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

Eyes: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Skin: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: Use process enclosures, exhaust ventilation controls, good work practices and respiratory protection to minimize exposure to liquid mists or dust from dried product. Follow product label respirator requirements when using this formulate product to treat seed, bag seed, clean up equipment and conduct other miscellaneous activities. In case of emergency spills, use a NIOSH approved respirator with an organic vapour cartridge and any R, P95 or HE filter.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Cream coloured liquid.

Formulation Type: Suspension concentrate.

Physical State: Liquid.

Odour: Chalky.

Odour Threshold: Not available.

pH: 3.7 (100% w/v @ 25 °C).

Melting Point: Not applicable.

Freezing Point: Not available.

Initial Boiling Point and Boiling Range: Not available.

Flash Point: > 101 °C (Pensky-Martens CC).

Evaporation Rate: Not available.

Flammability (solid/gas): Not applicable.

Lower Explosive Limit: Not applicable.

Upper Explosive Limit: Not applicable.

Vapour Pressure: Cyantraniliprole: 1.40×10^{-16} mmHg @ 20 °C.

Vapour Density: Not available.

Relative Density: 1.253 g/cm³.

Solubility(ies): Cyantraniliprole: 12.3 mg/L @ 20 °C, pH 7 (water).

Partition Coefficient (n-octanol water): Cyantraniliprole: 1.9

Auto-Ignition Temperature: 450 ± 5 °C.

Decomposition Temperature: Not available.

Viscosity: 318 mPa·s @ 20 °C.

Other Information: Not applicable.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical Stability: Stable under normal use and storage conditions.

Possibility of Hazardous Reactions: No hazardous reactions with normal handling and storage according to the label directions.

Conditions to Avoid: No decomposition if used as directed.

Incompatible Materials: No substances are known which lead to the formation of hazardous substances or thermal reactions.

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Dermal, inhalation, oral.

Symptoms of Acute Exposure: May cause minor eye irritation.

Potential Health Effects: Not applicable.

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Low Acute Toxicity</u>	
	Oral (LD50 Rat)	> 5,000 mg/kg body weight

Dermal:	<u>Low Acute Toxicity</u>	
	Dermal (LD50 Rat)	> 5,000 mg/kg body weight

Inhalation:	<u>Low Acute Toxicity</u>	
	Inhalation (LC50 Rat)	> 5.14 mg/L air – 4 hours

Eye Contact:	<u>Minimally Irritating (Rabbit)</u>
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Skin Contact:	<u>Non-Irritating (Rabbit)</u>
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Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>
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Specific Target Organ Toxicity (STOT) Single Exposure:

Cyantraniliprole:	Not classified as a specific target organ toxicant, single exposure.
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Specific Target Organ Toxicity (STOT) Repeated Exposure:

Cyantraniliprole:	The following effect occurred at levels of exposure that significantly exceed those expected under labeled usage conditions. Oral dog. Exposure time: 90-d. Altered blood chemistry, liver effects.
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Carcinogenicity:

Cyantraniliprole:	Animal testing did not show any carcinogenic effects.
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Reproductive Toxicity:

Cyantraniliprole:	Animal testing showed no reproductive toxicity.
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Mutagenicity:

Cyantraniliprole: Test on bacterial or mammalian cell cultures did not show mutagenic effects.
 Evidence suggests this substance does not cause genetic damage in animals.
 Evidence suggests this substance does not cause genetic damage in cultured mammalian cells.
 Evidence suggests this substance does not cause genetic damage in cultured bacterial cells.

Aspiration Hazard:

Cyantraniliprole: Not classified as an aspiration hazard.

Toxicity of Other Components:

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

Glycerin: Repeated or prolonged exposure to concentrated solution may result in dermatitis.
 Ethoxylated polyarylphenol phosphate: Causes serious eye irritation.
 Sodium polynaphthalene sulfonate: May cause irritation of the eyes, nose, throat and lungs. Adverse symptoms may include irritation, redness and coughing. Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

SECTION 12: ECOLOGICAL INFORMATION

Eco-Acute Toxicity:

Cyantraniliprole:
 Invertebrates (Water Flea) 48-hour LC₅₀/EC₅₀ 204 ppm
 Fish (Rainbow Trout) 96-hour LC₅₀/EC₅₀ 12.6 ppm

Persistence & Degradability:

Cyantraniliprole: Low persistence in soil. Low persistence in water.

Bioaccumulation Potential:

Cyantraniliprole: BCF < 500; does not bioaccumulate.

Mobility in Soil:

Cyantraniliprole: Moderate mobility in soil.

Other Adverse Effects: Not applicable.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Methods:

- Waste from residues: Refer to the product label for specific disposal/recycling information.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.
- Contaminated packaging: Refer to the product label for specific disposal/recycling information.
Empty remaining contents
Triple rinse containers
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not reuse empty containers.

SECTION 14: TRANSPORT INFORMATION

TDG Classification – Road/Rail:

Not regulated as a dangerous good.

Water Transport – International (IMDG):

UN Number: UN 3082
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Cyantraniliprole), Marine Pollutant.
Transport Hazard Class: Class 9
Packing Group: PG III
Environmental Hazards: Marine pollutant.

Air Transport (IATA-DGR):

UN Number: UN 3082
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Cyantraniliprole).
Transport Hazard Class: Class 9
Packing Group: PG III
Environmental Hazards: Environmentally hazardous.

Special Precautions for User:

Not applicable.

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable.

SECTION 15: REGULATORY INFORMATION

There are Canada-specific environmental requirements for handling, use and disposal of this pest control product that are indicated on the product label.

Hazardous Products Act Information:

This product has been classified in accordance with the amended Hazardous Products Act and the Hazard Criteria of the Hazardous Products Regulations (HPR), and the SDS contains all the information required by the HPR.

Hazardous Products Act Information: WHMIS 2015 Classification

This product is exempt under WHMIS 2015.

Pest Control Products Act (PCPA) Registration No.: 30899

Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:

PCPA Label Hazard Communications:

Caution – Eye Irritant.

Read the label and booklet before using.

Keep out of the reach of children.

PCPA Hazard on Label:	Eye Irritant	GHS Hazard Classification:	Not applicable.
PCPA Precautionary Symbol:	Not applicable.	GHS Hazard Symbol:	Not applicable.
PCPA Signal Word(s):	Caution	GHS Signal Word:	Not applicable.
PCPA Hazard Statement:	Not applicable.	GHS Hazard Statement:	Not applicable.

Allergens Contained in the Pest Control Product:

Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction.

NPRI Components:

Not applicable.

SECTION 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant SDS. Hazardous properties of all ingredients have been considered in the preparation of this SDS. Read the entire SDS for the complete hazard evaluation of this product.

Full Text of Abbreviations:

AB – Province of Alberta

BC – Province of British Columbia

BCF – Bioconcentration factor

EC₅₀ – Effective concentration, 50%

GHS – Globally Harmonized System of Classification and Labeling of Chemicals

LC₅₀ – Lethal concentration, 50%LD₅₀ – Lethal dose, 50%

IARC – International Agency for Research on Cancer

IATA-DGR – International Air Transport Association Dangerous Goods Regulations

IMDG – International Maritime Code for Dangerous Goods

NTP – National Toxicology Program

ON – Province of Ontario

OSHA – Occupational Safety & Health Administration

PEL – Permissible Exposure Limit

TDG – Transportation of Dangerous Goods

TLV – Threshold Limit Value

QC – Province of Quebec

SDS – Safety Data Sheet

WHMIS – Workplace Hazardous Materials Information System

Changes since last revision: Converted to SDS format.

Revision Date (Y-M-D): 2018-05-18

Supersedes Date (Y-M-D): 2017-12-31

Prepared by: Syngenta Canada Inc.

1-87-SYNGENTA (1-877-964-3682)

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END OF SAFETY DATA SHEET.

PMRA Approved
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Bag Label

GROUP	3	15	HERBICIDES
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FORTRESS® MICROACTIV HERBICIDE

Granular herbicide for Fall and Spring treatment to control wild oats and wild millet (green and yellow foxtail) in Spring and Durum Wheat, Spring Barley, Rapeseed (including Canola), Flax (not including low linolenic acid varieties), and Mustard.

Also provides suppression of several annual broadleaved weeds.

ACTIVE INGREDIENTS:

TRIALATE - 10% TRIFLURALIN - 4%

POTENTIAL SKIN SENSITIZER

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

AGRICULTURAL

REGISTRATION NO. 19521, PEST CONTROL PRODUCTS ACT

NET CONTENTS: 22.7 kg, 454 kg

IMPORTANT NOTE: Before use, recalibrate application equipment.

Read NOTICE before buying or using. If notice terms are not acceptable, return at once unopened.

Gowan Company L.L.C
P.O. Box 5569
Yuma, AZ 85366-5569
Product Information: 1-800-960-4318

PMRA Approved
2021-5602
2021-11-24

NOTE: Populations of green foxtail tolerant to trifluralin have developed in a number of fields in Western Canada which have a long history of repeated trifluralin use. Trifluralin or ethalfluralin containing products (i.e. ADVANCE®, HERITAGE®, RIVAL®, TREFLAN®, TRIFLUREX®, FORTRESS and EDGE®) will not control trifluralin-tolerant green foxtail. To delay selection or reduce the spread of trifluralin-tolerant green foxtail, avoid use of these products repeatedly in the same field, or use a separate non-trifluralin herbicide application for control of trifluralin-tolerant green foxtail.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.
MAY CAUSE SKIN AND EYE IRRITATION.
MAY BE HARMFUL IF SWALLOWED.
Wash thoroughly after handling.
Do not take internally.
Do not get in eyes or on skin or on clothing.
Launder clothes before reuse.

All handlers must wear chemical-resistant coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, socks, and chemical-resistant footwear during mixing, loading, application, clean-up and repair. In addition, during mixing, loading, clean-up and repair activities, wear either a respirator with a NIOSH/MSHA/BHSE-approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH/MSHA/BHSE-approved canister approved for pesticides. Aerial mixers/loaders must also wear coveralls.

If this control product is to be used on a commodity that may be exported to the U.S., and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

Restricted-Entry Interval

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

POTENTIAL SKIN SENSITIZER

Do not apply this product directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries and marine habitats.

Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

ENVIRONMENTAL PRECAUTIONS:

Runoff

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay. Avoid application of this product when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Leaching

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

Volatilization

The active ingredient contained in this product is known to volatilize. To reduce the atmospheric loading of triallate, effort should be made to reduce the volatilization such as the following:

- Incorporation into the soil concurrently with application.
- Application should occur when soil temperatures are less than 4°C or less.

CAUTION: Do not graze the treated crops or cut for hay; there are insufficient data available to support such uses.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take the container label or product name and Pest Control Product Registration Number with you when seeking medical attention.

For medical emergencies involving this product, call PROSAR at 1-888-478-0798.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

Keep Fortress Microactiv Herbicide bag closed to prevent spills and contamination. Avoid contamination of seed, feed and foodstuffs.

DISPOSAL

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow the provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose the container in accordance with provincial requirements.

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5. For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the Provincial Regulatory Agency in case of a spill, and for the cleanup of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

Fortress® is a registered trademark of Gowan Company LLC.

Advance, Edge, Heritage and Treflan are registered trademarks of Dow AgroSciences Canada Inc.

Rival is a registered trademark of Aventis CropScience Canada Inc.

Triflurex is a registered trademark of Makhteshim-Agan of North America Inc.

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BOOKLET

GROUP	3	15	HERBICIDES
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FORTRESS® MICROACTIV HERBICIDE

Granular herbicide for Fall and Spring treatment to control wild oats and wild millet (green and yellow foxtail) in Spring and Durum Wheat, Spring Barley, Rapeseed (including Canola), Flax (not including low linolenic acid varieties), and Mustard.
Also provides suppression of several annual broadleaved weeds.

ACTIVE INGREDIENTS:

TRIALATE – 10% TRIFLURALIN – 4%

POTENTIAL SKIN SENSITIZER

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

AGRICULTURAL

COMPLETE DIRECTIONS FOR USE

REGISTRATION NO. 19521, PEST CONTROL PRODUCTS ACT

NET CONTENTS: 22.7 kg, 454 kg

IMPORTANT NOTE: Before use, recalibrate application equipment.

Read NOTICE before buying or using. If notice terms are not acceptable, return at once unopened.

Gowan Company L.L.C
P.O. Box 5569
Yuma, AZ 85366-5569
Product Information: 1-800-960-4318

NOTE: Populations of green foxtail tolerant to trifluralin have developed in a number of fields in Western Canada which have a long history of repeated trifluralin use. Trifluralin or ethalfluralin containing products (i.e. ADVANCE(R), HERITAGE(R), RIVAL(R), TREFLAN(R), TRIFLUREX(R), FORTRESS and EDGE(R)) will not control trifluralin-tolerant green foxtail. To delay selection or reduce the spread of trifluralin-tolerant green foxtail, avoid use of these products repeatedly in the same field, or use a separate non-trifluralin herbicide application for control of trifluralin-tolerant green foxtail.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.
MAY CAUSE SKIN AND EYE IRRITATION.
MAY BE HARMFUL IF SWALLOWED.
Wash thoroughly after handling.
Do not take internally.
Do not get in eyes or on skin or on clothing.
Launder clothes before reuse.

All handlers must wear chemical-resistant coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, socks, and chemical-resistant footwear during mixing, loading, application, clean-up and repair. In addition, during mixing, loading, clean-up and repair activities, wear either a respirator with a NIOSH/MSHA/BHSE-approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH/MSHA/BHSE-approved canister approved for pesticides. Aerial mixers/loaders must also wear coveralls

If this control product is to be used on a commodity that may be exported to the U.S., and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

Restricted-Entry Interval

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

POTENTIAL SKIN SENSITIZER

Do not apply this product directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries and marine habitats.

Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

ENVIRONMENTAL PRECAUTIONS:

Runoff

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay. Avoid application of this product when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Leaching

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

Volatilization

The active ingredient contained in this product is known to volatilize. To reduce the atmospheric loading of triallate, effort should be made to reduce the volatilization such as the following:

- Incorporation into the soil concurrently with application.
- Application should occur when soil temperatures are less than 4°C or less.

CAUTION: Do not graze the treated crops or cut for hay; there are insufficient data available to support such uses.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

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IF IN EYES: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take the container label or product name and Pest Control Product Registration Number with you when seeking medical attention.

For medical emergencies involving this product, call PROSAR at 1-888-478-0798.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

GENERAL INFORMATION

This granular herbicide is recommended for wild oat and wild millet (green and yellow foxtail) control in spring and durum wheat, spring barley, rapeseed (including canola), flax (not including low linolenic acid varieties) and mustard only.

This product will also provide suppression of the following annual broadleaved weed species: lamb's quarters, kochia, redroot pigweed, Russian thistle and wild buckwheat. Other crops should not be treated with this product as injury may occur.

This product should be applied according to the recommendations on this label. See the

"Directions For Use" section for additional information.

Application equipment must be properly calibrated. Application of an excessive rate of granular Fortress Microactiv Herbicide may injure the crop, whereas application of too low a rate may result in poor weed control. Before applying this product, be sure the soil is in good working condition. Clay soils may require additional tillage to obtain good tilth. Application to a field which is wet, lumpy, rough or ridged will result in reduced weed control and promote crop thinning. See the **"Field Preparation"** section for additional information.

The initial incorporation of this product into the soil must be completed within 24 hours after application, except for the Fall surface treatment. For Fall surface guidelines, see the **"Fall Treatment (surface)"** section of this label. The incorporation should not be deeper than 5 cm as deeper incorporation tends to dilute the product, thus decreasing weed control and increasing the risk of crop injury. See the **"How To Incorporate"** section for additional information.

When using granular Fortress Microactiv Herbicide, an untreated strip should be left for proof of results. Wild oat control may be evaluated by removing a surface 2.5 to 5 cm of soil at the time of germination to inspect the number of wild oats that were killed before emergence. This product is primarily absorbed by wild oat shoots from the treated layer of the soil. Wild oats are usually controlled before they emerge through the soil. Occasionally, and particularly under dry conditions and/or cool soil temperatures, some wild oats may emerge and reach the 3 to 4 leaf stage before dying. Wild Millet seedlings will generally be controlled as they germinate.

Rainfall of at least 1.5 cm within 2 weeks after seeding in the spring is required to ensure maximum performance.

Under conditions of prolonged cool soil temperatures at the time of germination, or extreme drought in spring, this product may not maintain the usual high standard of weed control.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, Fortress Microactiv Herbicide is both a Group 3 and a Group 15 herbicide. Any weed population may contain or develop plants naturally resistant to Fortress Microactiv Herbicide and other Group 3 or Group 15 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- ✓ Where possible, rotate the use of Fortress Microactiv Herbicide or other Group 3 or Group 15 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- ✓ Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- ✓ Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- ✓ Monitor treated weed populations after herbicide application for signs of resistance development (for example, only on weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group.
- ✓ Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- ✓ Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options
- ✓ Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- ✓ For further information or to report suspected resistance, contact Gowan Company at 1-800-960-4318 or at www.gowanco.com.

HOW TO APPLY FORTRESS MICROACTIV HERBICIDE AND CALIBRATE APPLICATION EQUIPMENT

Granular Fortress Microactiv Herbicide must be applied through a ground broadcast applicator such as a grass seed attachment or a specially designed ground broadcast applicator. This product can also be applied by an airplane capable of applying small quantities of granules evenly.

GROUND EQUIPMENT: It is important that the applicator be calibrated properly to deliver the desired amount of this product to avoid applying too little or too much material. To give even distribution, scatter plates (similar to those used for applying granules in band) must be attached to each delivery tube or outlet in such a manner to give overall coverage. To calibrate, attach cloth or strong plastic bag over each spreader plate or delivery tube. Operate over normal terrain to be treated at 6 to 8 km/h. Collect the granules from all outlets after covering the desired distance.

For example: If a 4.25 m applicator is being used, stake off a distance of 200 m in the field to be treated. After attaching a bag to each outlet, collect the granules while driving the distance. Check

to see that each outlet disperses the same amount of granules. Combine all samples and weigh. For the above set of conditions, the quantities of granules that should be collected for the following recommended rates for broadcast treatment are:

Recommended Rate

Amount to be collected	11 kg/ha 0.9 kg	14 kg/ha 1.2 kg	17 kg/ha 1.5 kg
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If more or less than the desired quantity is collected adjust opening accordingly and again collect the granules while driving the staked off distance. Continue this procedure until the proper amount is delivered.

To calibrate applicators using air pressure to disperse the granules, follow directions as outlined by the manufacturer.

AERIAL APPLICATION

Do not use human flaggers.

Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS).

GRANULAR FORTRESS MICROACTIV HERBICIDE RATES (kg/ha)					
Crop	Less than 2% OM	2-4% OM	4-6% OM	6-8% OM	Greater than 8% OM
Spring and Durum Wheat	-	11	14	14	17
Spring Barley	11	14	14	17	17
Rapeseed, (including	14	14	14	17	17

Canola) Flax**, Mustard					
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Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even target coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of granules onto any body of water or other non-target areas.

Do not apply during periods of dead calm or when wind velocity and direction pose a risk of drift. Do not spread when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Gowan Company at 1-800-960-4318 or obtain technical advice from the distributor or your provincial agricultural representative.

For aerial applications, attachments designed for applying low volumes of granules must be used. Appropriate modifications should be made to equipment to ensure precise application. It is also necessary to properly calibrate equipment to ensure uniformity of application and proper rate.

See the “**Directions for Use**” section of this label for application rates and additional information.

FIELD PREPARATION

Before applying this product, be sure the soil is in good working condition. All deep tillage by cultivation or double disc implements must be completed prior to application of this product. If excessive trash is present, additional tillage or other appropriate trash management practice will be necessary to reduce the trash cover to an acceptable level before application as too much trash can make uniform incorporation difficult.

If the soil is excessively wet or lumpy, making proper incorporation difficult, cultivation with suitable tillage equipment may be required before application and incorporation to improve the soil conditions. If ridging is a problem, suitable tillage is recommended prior to application to eliminate the ridging and ensure uniform distribution of the herbicide. Fall tillage is not necessary with the Fall surface treatment.

HOW TO INCORPORATE

This product must be incorporated into the soil, using suitable tillage equipment, in order to provide weed control. Two incorporation operations at right angles to one another are necessary for thorough mixing of this product in the soil. The first incorporation should be completed within 24 hours of application, except for the Fall Surface application. The second incorporation may then be done during the fall or delayed until the spring.

Do not incorporate this product more than 5 cm. This can be accomplished by setting the tillage equipment to work the soil not deeper than 7.5 cm to 10 cm. Shallow incorporation is necessary to prevent dilution of the product, thus decreasing weed control and increasing the risk of crop injury.

Harrowing does not provide effective incorporation if compact soil prevents penetration of harrow teeth or if trash accumulates in the harrow section or if harrows bounce.

FALL INCORPORATION

This product must be incorporated as described in the "**How To Incorporate**" section of this label.

Only one incorporation is required in the fall, except for the fall surface treatment. The second incorporation may be done either in the fall (prior to soil freeze-up) or in the spring. If the second incorporation is done in the spring it may be done any time until crop emergence. If the second incorporation is conducted after seeding it should be done with a harrow or other suitable tillage equipment adjusted to a depth so as not to disturb the seed. If ridging is a problem after seeding, one harrowing is recommended to eliminate the ridging and ensure uniform distribution of the herbicide.

SPRING INCORPORATION

Before Seeding

This product must be incorporated as described in the "**How To Incorporate**" section of this label.

This product may be incorporated prior to the seeding of any labelled crop. See the "**Directions For Use**" section for exceptions. The second incorporation may then be done any time until crop emergence. If the second incorporation is conducted after seeding it should be done with a harrow or other suitable tillage equipment adjusted to a depth so as not to disturb the seed. If

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ridging is a problem after seeding, one harrowing is recommended to eliminate the ridging and ensure uniform distribution of the herbicide.

NOTE

FOR THE BEST RESULTS ON SPRING APPLICATIONS, DELAY THE SECOND INCORPORATION FOR AT LEAST 48 HOURS FOLLOWING THE FIRST. Under conditions of prolonged cool soil temperatures or extreme drought a longer delay may be utilized to maximize control.

DIRECTIONS FOR USE

DO NOT apply more than one application per year.

DO NOT apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Discard clothing or other absorbent materials that have been heavily contaminated with the product. DO NOT reuse them.

Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries and marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

To minimize the release of trifluralin into the environment due to volatilization, trifluralin should only be applied on cool mornings and evenings when air temperatures are 15°C or lower. To further reduce volatilization to the atmosphere, incorporation into the soil should occur concurrently with application.

This product can be applied prior to the seeding of Spring and Durum wheat, spring barley, rapeseed (including canola), mustard and flax (not including low linolenic acid varieties).

Fall Treatment (Incorporated)

Fall applications of this product must be made after September 15 and until soil freeze-up. Applications made before September 15 may result in reduced effectiveness of the herbicide. See the "**Field Preparation**", "**How to Incorporate**" and "**Important Seeding Requirements**" sections of this label for additional information.

GRANULAR FORTRESS MICROACTIV HERBICIDE RATES (kg/ha)						
Crop	Less than 2% OM	2-4% OM	4-6% OM	6-8% OM	Greater than 8% OM	Seeding Depth
Spring and Durum Wheat	-	11	14	14	17	6-7.5cm*
Spring Barley	11	14	14	17	17	6-7.5cm
Rapeseed, (including Canola) Flax**, Mustard	14	14	14	17	17	As desired

*This seeding depth will ensure placement below the treated layer.

DO NOT SEED DEEPER THAN 7.5 cm.

** Does not include low linolenic acid varieties.

OM = Organic Matter.

Fall Treatment (Surface)

Where fields are prone to water and/or wind erosion, and fall tillage is therefore undesirable, Fall Surface applications should be made when average soil temperature at the 5 cm depth is 4°C or less and within 3 weeks of soil freeze up. This situation generally occurs by October 1 across the prairies.

Apply at rates shown in the table below. Applications should be made to standing stubble, chemical fallow or summerfallow fields in a state of low soil erodibility. Avoid smooth, hard-packed soil conditions in summerfallow which may allow granules to drift.

Incorporate twice at right angles in spring. Early seeding and a delayed second incorporation of 48 hours or more will provide best results. Surface applications should not be made to fields covered with snow or excessive crop residue, which will not allow granule contact with soil. Under excessively warm and/or wet conditions between application and crop emergence, control may be reduced.

For best results on heavy wild oat infestations, use the incorporated treatment only.

Soil colour may not be a precise indication of soil organic matter content. Ensure that the application rate chosen from the table below is appropriate for your soil type.

FALL GRANULAR FORTRESS MICROACTIV HERBICIDE RATES (kg/ha)					
Crop	Less than 2% OM	2-4% OM	4-6% OM	Greater than 6% OM	Seeding Depth
Spring and Durum Wheat	-	11	14	14	6-7.5cm*
Spring Barley	11	14	14	17	6-7.5cm
Rapeseed, (including Canola) Flax**, Mustard	14	14	14	17	As desired

*This seeding depth will ensure placement below the treated layer.

DO NOT SEED DEEPER THAN 7.5 cm.

** Does not include low linolenic acid varieties

OM = Organic Matter.

Note: Weed control may be slightly reduced with a fall surface treatment

Spring Treatment

This product can be applied before seeding labelled crops, except as noted in the table below.

See the "Field Preparation", "How To Incorporate" and "Important Seeding Requirements" sections of this label for additional information.

SPRING GRANULAR FORTRESSMICROACTIV HERBICIDE RATES (kg/ha)					
Crop	Application Timing	Less than 2% OM	2-4% OM	4-6% OM	Greater than 6% OM
Spring and Durum Wheat	Before Seeding	-	-	11	14
Spring Barley	Before Seeding	-	11	14	17
Rapeseed, (including Canola) Flax*, Mustard	Before Seeding	14	14	17	17

* Does not include low linolenic acid varieties

OM = Organic Matter

IMPORTANT SEEDING REQUIREMENTS

1. For Wheat or Barley, hoe drills and double disc press drills can be used on all soil types that are indicated in the rate charts.
2. Wheat or barley may be seeded into an application of this product using a discer seeder or air seeder, only in the Red River Valley of Manitoba in soils with greater than 4 percent organic matter. If an air seeder is used it must be equipped with a depth control device to ensure accurate seed placement, otherwise crop injury may occur.
3. Do not apply this product to soil which is to be seeded to wheat under the following conditions: in Fall to soil with less than 2 percent Organic Matter or in Spring to soil with less than 4 percent Organic Matter as indicated in the rate charts.
4. Substantial thinning in wheat and barley following treatment has been known to occur especially under conditions of heavy rainfall and/or cold weather after application and before crop emergence. **THE SEED MUST BE PLACED BELOW THE GRANULAR FORTRESS MICROACTIV HERBICIDE TREATED SOIL LAYER.** Thinning may reduce crop yield but in most cases it is more than offset by tillering. **DO NOT SEED DEEPER THAN 7.5 cm.**
5. To ensure an even crop stand, increase the usual seeding rate of wheat or barley by 10 percent, especially if soil conditions are cold or dry.

ATTENTION

Some wheat or barley injury may be noted on eroded knolls.

Under normal conditions Fortress Microactiv Herbicide carryover will not harm crops grown in rotation. As a precaution, domestic oats, sugarbeets and small-seeded annual grasses such as Timothy, Canary Seed Grass and Creeping Red Fescue should not be grown in rotation following a Fortress Microactiv Herbicide treated crop.

Do not apply Fortress Microactiv Herbicide for wheat on land which has been treated with trifluralin since June 1 of the previous year.

For additional information on this or other Gowan agricultural products, call Gowan Company at: 1-800-960-4318.

STORAGE

Keep Fortress Microactiv Herbicide bag closed to prevent spills and contamination. Avoid contamination of seed, feed and foodstuffs.

DISPOSAL

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.

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2021-11-24

2. Follow the provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose the container in accordance with provincial requirements.
5. For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the Provincial Regulatory Agency in case of a spill, and for the cleanup of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

Fortress[®] is a registered trademark of Gowan Company LLC.

Advance, Edge, Heritage and Treflan are registered trademarks of Dow AgroSciences Canada Inc.

Rival is a registered trademark of Aventis CropScience Canada Inc.

Triflurex is a registered trademark of Makhteshim-Agan of North America Inc.

Safety Data Sheet
according to PMRA

Printing date 01/07/2022

Reviewed on 01/07/2022

1 Identification

· **Product identifier**

· **Trade name:** **FORTRESS® MICROACTIV HERBICIDE**

· **CAS Number:**

Triallate (10.0 %): 2303-17-5

Trifluralin (4.0 %): 1582-09-8

Registration number: PCP Registration No.: 19521

Group 3 15 Herbicide

· **Application of the substance / the mixture** Agricultural Herbicide

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Gowan Company L.L.C.

P.O. Box 5569

Yuma, Arizona 85366-5569

(800) 960-4318

· **Information department:** sds@gowanco.com

· **Emergency telephone number:**

Chemtrec® Emergency Telephone 24 - Hours: (Spills, leak or fire) Inside U.S. & Canada: (800) 424-9300

Outside the U.S. & Canada: +011 (703) 527-3887

For medical emergency (ProPharma Group®): (888) 478-0798

2 Hazard identification

· **Classification of the substance or mixture**



GHS09 Environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.



GHS07

Skin Sensitizer - Category 1 H317 May cause an allergic skin reaction.

· **Label elements**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS07



GHS09

· **Signal word** Warning

· **Hazard-determining components of labeling:**

Triallate (ISO) / diisopropylthiocarbamate de S-2,3,3-tri-chloroallyle

trifluralin (ISO) (containing < 0,5 ppm NPDA)

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· Hazard statements

- H317 May cause an allergic skin reaction.
 H410 Very toxic to aquatic life with long lasting effects.

· Precautionary statements

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves.
 P302+P352 If on skin: Wash with plenty of water.
 P362+P364 Take off contaminated clothing and wash it before reuse.
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
 P321 Specific treatment (see on this label).
 P391 Collect spillage.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Hazard description:

MAY CAUSE SKIN AND EYE IRRITATION.
 MAY BE HARMFUL IF SWALLOWED.

· Classification system:

- NFPA ratings (scale 0 - 4)



Health = 1
 Fire = 1
 Reactivity = 1

HAZARD INDEX:

- 4 Severe Hazard
- 3 Serious Hazard
- 2 Moderate Hazard
- 1 Slight Hazard
- 0 Minimal Hazard

· Other hazards

- PBT: Not applicable.
- vPvB: Not applicable.

3 Composition/Information on ingredients

· Chemical characterization: Mixtures

- **Description:** Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

CAS: 2303-17-5	Triallate (ISO) / diisopropylthiocarbamate de S-2,3,3-tri-chloroallyle ⚠ Specific Target Organ Toxicity - Repeated Exposure - Category 2, H373; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Toxicity (Oral) - Category 4, H302; Skin Sensitizer - Category 1, H317	10.0% w/w
CAS: 1582-09-8	trifluralin (ISO) (containing < 0,5 ppm NPDA) ⚠ Carcinogenicity - Category 2, H351; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Sensitizer - Category 1, H317	4.0% w/w

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Trade name: FORTRESS® MICROACTIV HERBICIDE

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4 First-aid measures

· **Description of first aid measures**

· **General information:**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

You may also contact 1-888-478-0798 for emergency medical treatment information.

· **After inhalation:**

• Move person to fresh air.

• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.

• Call poison control center or doctor for further treatment advice.

· **After skin contact:**

• Take off contaminated clothing.

• Rinse skin immediately with plenty of water for 15-20 minutes.

• Call a poison control center or doctor for treatment advice.

· **After eye contact:**

• Hold eye open and rinse slowly and gently with water for 15-20 minutes.

• Remove contact lenses, if present, after first 5 minutes, then continue rinsing eyes.

• Call a poison control center or doctor for treatment advice.

· **After swallowing:**

• Call a poison control center or doctor immediately for treatment advice.

• Have person sip a glass of water if able to swallow.

• Do not induce vomiting unless told to do so by a poison control center or doctor.

• Do not give anything by mouth to an unconscious person.

· **Information for doctor:**

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **Special hazards arising from the substance or mixture**

Carbon monoxide (CO)

Nitrogen oxides (NO_x)

Hydrogen fluoride (HF)

Sulphur oxides (SO_x)

· **Advice for firefighters**

· **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

All handlers must wear chemical-resistant coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, socks, and chemical-resistant footwear during mixing, loading, application, clean-up and repair. In addition, during mixing, loading, clean-up and repair activities, wear either a respirator with a NIOSH/MSHA/BHSE-approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH/MSHA/BHSE-approved canister approved for pesticides. Aerial mixers/loaders must also wear coveralls.

· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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- **Methods and material for containment and cleaning up:** Pick up mechanically.
- **Reference to other sections**
 - See Section 7 for information on safe handling.
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
 - **Precautions for safe handling**
KEEP OUT OF REACH OF CHILDREN. MAY CAUSE SKIN AND EYE IRRITATION. MAY BE HARMFUL IF SWALLOWED. Wash thoroughly after handling. Do not take internally. Do not get in eyes or on skin or on clothing.
 - **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
 - **Storage:**
 - **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
 - **Information about storage in one common storage facility:** Store away from foodstuffs.
 - **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/ Personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
 - **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
 - **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
 - **Personal protective equipment:**
 - **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
 - **Breathing equipment:**
During mixing, loading, clean-up and repair activities, wear either a respirator with a NIOSH/MSHA/BHSE-approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH/MSHA/BHSE-approved canister approved for pesticides.
 - **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- **Material of gloves** Chemical-resistant gloves.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Goggles recommended during refilling.

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· Body protection:

All handlers must wear chemical-resistant coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, socks, and chemical-resistant footwear during mixing, loading, application, clean-up and repair.

9 Physical and chemical properties

· Information on basic physical and chemical properties
· General Information
· Appearance:

- **Form:** Granulate
- **Color:** Yellow to orange
- **Odor:** Slight
- **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· Change in condition

- **Melting point/Melting range:** Undetermined.
- **Boiling point/Boiling range:** Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not self-igniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· Explosion limits:

- **Lower:** Not determined.
- **Upper:** Not determined.

· **Vapor pressure:** Not applicable.

· **Density:** Not determined.

- **Relative density** Not determined.
- **Vapor density** Not applicable.
- **Evaporation rate** Not applicable.

· Solubility in / Miscibility with

· **Water:** Dispersible.

· **Partition coefficient (n-octanol/water):** Not determined.

· Viscosity:

- **Dynamic:** Not applicable.
- **Kinematic:** Not applicable.

· Solvent content:

· **Organic solvents:** 0.0 %

· **Solids content:** 100.0 %

· Other information

No further relevant information available.

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10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
 - **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:**
 - Carbon monoxide (CO)
 - Nitrogen oxides (NO_x)
 - Hydrogen fluoride (HF)
 - Sulfur oxides (SO_x)

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

Oral	LD50	>5000 mg/kg (rat)
Dermal	LD50	>5000 mg/kg (rabbit)

CAS: 2303-17-5 Triallate (ISO) / diisopropylthiocarbamate de S-2,3,3-tri-chloroallyle

Oral	LD50	1700 mg/kg (rat)
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- **Primary irritant effect:**

- **on the eye:** Slight irritation

- **Additional toxicological information:**

The product is not subject to classification according to internally approved calculation methods for preparations:

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

CAS: 1582-09-8	trifluralin (ISO) (containing < 0,5 ppm NPDA)	3
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- **NTP (National Toxicology Program)**

None of the ingredients are listed.

12 Ecological information

- **Toxicity**

Do not apply this product directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries and marine habitats. Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

- **Aquatic toxicity:** No further relevant information available.

- **Persistence and degradability** No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

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· **Additional ecological information:**

· **General notes:**

*Water hazard class 3 (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.*

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable federal, provincial or municipal procedures. Keep out of drains, sewers, ditches and waterways.

· **Uncleaned packagings:**

· **Recommendation:**

Disposal must be made according to official regulations.

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow the provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose the container in accordance with provincial requirements.
5. For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the Provincial Regulatory Agency in case of a spill, and for the cleanup of spills.

14 Transport information

· **UN-Number**

· **DOT/TDG**

Not Regulated

· **ADR**

Marine Pollutants Exemption (TDG 1.45.1)

· **IMDG, IATA**

UN3077

· **UN proper shipping name**

· **DOT/TDG**

Void

· **ADR**

Marine Pollutants Exemption (TDG 1.45.1)

· **IMDG**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trilalate (ISO), trifluralin (ISO) (containing < 0,5 ppm NPDA)), MARINE POLLUTANT

· **IATA**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trilalate (ISO), trifluralin (ISO) (containing < 0,5 ppm NPDA))

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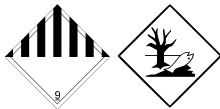
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Trade name: **FORTRESS® MICROACTIV HERBICIDE**

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· **Transport hazard class(es)**· **DOT/TDG (Transport dangerous goods):**· **Class** Void· **ADR, IMDG, IATA**

· **Class** 9 Miscellaneous dangerous substances and articles
 · **Label** 9

· **Packing group**· **DOT/TDG** Void· **ADR, IMDG, IATA** III· **Environmental hazards:**

Product contains environmentally hazardous substances: Triallate (ISO) / diisopropylthiocarbamate de S-2,3,3-tri-chloroallyle, trifluralin (ISO) (containing < 0,5 ppm NPDA)

· **Marine pollutant:** Symbol (fish and tree)· **Special marking (ADR):** Symbol (fish and tree)· **Special marking (IATA):** Symbol (fish and tree)· **Special precautions for user**

Warning: Miscellaneous dangerous substances and articles

· **Hazard identification number (Kemler code):** 90· **EMS Number:** F-A,S-F· **Stowage Category** A· **Stowage Code** SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable

· **Transport/Additional information:**· **ADR**

· **Excepted quantities (EQ)** Code: E1
 Maximum net quantity per inner packaging: 30 g
 Maximum net quantity per outer packaging: 1000 g

· **IMDG**

· **Limited quantities (LQ)** 5 kg
 · **Excepted quantities (EQ)** Code: E1
 Maximum net quantity per inner packaging: 30 g
 Maximum net quantity per outer packaging: 1000 g

· **UN "Model Regulation":**

Canada TDG:
 Marine Pollutants Exemption (TDG 1.45.1)

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15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **SARA Title III**

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

CAS: 2303-17-5 Triallate (ISO) / diisopropylthiocarbamate de S-2,3,3-tri-chloroallyle

CAS: 1582-09-8 trifluralin (ISO) (containing < 0,5 ppm NPDA)

· **TSCA (Toxic Substances Control Act):**

None of the ingredients are listed.

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

CAS: 1582-09-8 trifluralin (ISO) (containing < 0,5 ppm NPDA)

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

None of the ingredients are listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS07 GHS09

· **Signal word** Warning

· **Hazard-determining components of labeling:**

Triallate (ISO) / diisopropylthiocarbamate de S-2,3,3-tri-chloroallyle
trifluralin (ISO) (containing < 0,5 ppm NPDA)

· **Hazard statements**

H317 May cause an allergic skin reaction.

H410 Very toxic to aquatic life with long lasting effects.

· **Precautionary statements**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves.

P302+P352 If on skin: Wash with plenty of water.

P362+P364 Take off contaminated clothing and wash it before reuse.

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P321 Specific treatment (see on this label).

P391 Collect spillage.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Additional classification according to Decree on Hazardous Materials:**

Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

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There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H373 May cause damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

- **Department issuing SDS:** Supply Chain

- **Contact:** sds@gowanco.com

- **Date of the latest revision of the safety data sheet** 01/07/2022 / -

- **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

- **Sources** Fortress® is a registered trademark of Gowan Company LLC.

- *** Data compared to the previous version altered.**

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SAFETY DATA SHEET

Glyphosate IPA 41% SL

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	Glyphosate IPA 41% SL
Product number	FG172825
CAS number	38641-94-0
EC number	689-719-4

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Laboratory reagent. Manufacture of substances. Research and development.
-----------------	--

1.3. Details of the supplier of the safety data sheet

Supplier	Carbosynth Ltd 8&9 Old Station Business Park Compton Berkshire RG20 6NE UK +44 1635 578444 +44 1635 579444 info@carbosynth.com
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1.4. Emergency telephone number

Emergency telephone	+44 7887 998634
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Not Classified
Environmental hazards	Not Classified

2.2. Label elements

EC number	689-719-4
Hazard statements	NC Not Classified

2.3. Other hazards

No data available.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product name	Glyphosate IPA 41% SL
CAS number	38641-94-0

Glyphosate IPA 41% SL

EC number 689-719-4
Chemical formula C₆H₁₇N₂O₅P

SECTION 4: First aid measures

4.1. Description of first aid measures

General information Get medical advice/attention if you feel unwell.

Inhalation Remove person to fresh air and keep comfortable for breathing. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. If breathing stops, provide artificial respiration. Get medical attention if symptoms are severe or persist.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention if symptoms are severe or persist.

Skin contact Remove contaminated clothing. Rinse with water. Continue to rinse for at least 15 minutes. Wash contaminated clothing before reuse. Get medical attention if symptoms are severe or persist.

Eye contact Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes. Get medical attention if symptoms are severe or persist.

4.2. Most important symptoms and effects, both acute and delayed

General information See Section 11 for additional information on health hazards.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards None known.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours. Oxides of carbon. Oxides of nitrogen. Oxides of phosphorus.

5.3. Advice for firefighters

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents. Use protective equipment appropriate for surrounding materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material. Avoid inhalation of vapours. Provide adequate ventilation. Keep unnecessary and unprotected personnel away from the spillage.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground.

Glyphosate IPA 41% SL

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Absorb spillage with sand or other inert absorbent. Clear up spills immediately and dispose of waste safely. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Provide adequate ventilation. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Wear protective clothing as described in Section 8 of this safety data sheet. Wash hands thoroughly after handling. Provide adequate ventilation. Avoid contact with skin and eyes. Avoid inhalation of vapours.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Keep container tightly closed. Store in a cool and well-ventilated place. Hygroscopic. Store contents under inert gas. Store at temperatures between 2°C and 8°C.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

No exposure limits known for ingredient(s).

8.2. Exposure controls

Appropriate engineering controls Provide adequate ventilation.

Eye/face protection Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection Wear protective gloves. To protect hands from chemicals, gloves should comply with European Standard EN374.

Other skin and body protection Wear appropriate clothing to prevent repeated or prolonged skin contact.

Respiratory protection Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. Gas and combination filter cartridges should comply with European Standard EN14387. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.

Environmental exposure controls Keep container tightly sealed when not in use.

SECTION 9: Physical and chemical properties

Glyphosate IPA 41% SL

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Gold.
Odour	No data available.
Odour threshold	No data available.
pH	No data available.
Melting point	>222°C
Initial boiling point and range	No data available.
Flash point	No data available.
Evaporation rate	No data available.
Flammability (solid, gas)	No data available.
Upper/lower flammability or explosive limits	No data available.
Vapour pressure	No data available.
Vapour density	No data available.
Relative density	No data available.
Solubility(ies)	Slightly soluble in water.
Partition coefficient	No data available.
Auto-ignition temperature	No data available.
Decomposition Temperature	No data available.
Viscosity	No data available.
Explosive properties	No data available.
Oxidising properties	No data available.

9.2. Other information

Molecular weight	228.18
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	No data available.
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10.2. Chemical stability

Stability	Stable under the prescribed storage conditions.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	No data available.
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10.4. Conditions to avoid

Conditions to avoid	No data available.
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10.5. Incompatible materials

Materials to avoid	Strong oxidising agents.
---------------------------	--------------------------

Glyphosate IPA 41% SL

10.6. Hazardous decomposition products

Hazardous decomposition products Oxides of carbon. Oxides of nitrogen. Oxides of phosphorus.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects Not regarded as a health hazard under current legislation.

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 7,500.0

Species Rat

Notes (oral LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - dermal

Notes (dermal LD₅₀) Based on available data the classification criteria are not met.

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Based on available data the classification criteria are not met.

Skin corrosion/irritation

Animal data Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation Based on available data the classification criteria are not met.

Respiratory sensitisation

Respiratory sensitisation Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met.

IARC carcinogenicity None of the ingredients are listed or exempt.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Reproductive toxicity - development Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met.

Glyphosate IPA 41% SL

General information	No specific health hazards known. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	No specific symptoms known. Spray/mists may cause respiratory tract irritation.
Ingestion	No specific symptoms known. May cause discomfort if swallowed.
Skin contact	No specific symptoms known. May cause discomfort.
Eye contact	No specific symptoms known. May be slightly irritating to eyes.
Route of exposure	Ingestion Inhalation Skin and/or eye contact
Target organs	No specific target organs known.
RTECS #	MC1080000

Glyphosate IPA 41% SL

SECTION 12: Ecological information

Ecotoxicity Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity

Toxicity Based on available data the classification criteria are not met.

12.2. Persistence and degradability

Persistence and degradability The degradability of the product is not known.

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient No data available.

12.4. Mobility in soil

Mobility No data available.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment No data available.

12.6. Other adverse effects

Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered.

SECTION 14: Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

Glyphosate IPA 41% SL

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations	Health and Safety at Work etc. Act 1974 (as amended). The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"]. EH40/2005 Workplace exposure limits.
EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways. RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail. IATA: International Air Transport Association. ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air. IMDG: International Maritime Dangerous Goods. CAS: Chemical Abstracts Service. ATE: Acute Toxicity Estimate. LC ₅₀ : Lethal Concentration to 50 % of a test population. LD ₅₀ : Lethal Dose to 50% of a test population (Median Lethal Dose). EC ₅₀ : 50% of maximal Effective Concentration. PBT: Persistent, Bioaccumulative and Toxic substance. vPvB: Very Persistent and Very Bioaccumulative.
Training advice	Only trained personnel should use this material.
Revision date	27/11/2019
Revision	1

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

2019-2217
2019-06-12

GROUP

9

HERBICIDE

R/T 540 Liquid Herbicide

Solution

AGRICULTURAL and INDUSTRIAL

CAUTION



POISON

WARNING - EYE AND SKIN IRRITANT

REGISTRATION NO. 28487 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: Glyphosate, 540 grams acid equivalent per litre, present as potassium salt.

Water Soluble Herbicide for non-selective weed control

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING.

NET CONTENTS: 10 LITRES to Bulk

**MONSANTO CANADA ULC
900 One Research Road
Winnipeg, Manitoba R3T 6E3
1-800-667-4944**

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.
HARMFUL IF SWALLOWED.
HARMFUL IF INHALED.
CAUSES EYE AND SKIN IRRITATION.
Avoid contact with eyes, skin or clothing.
Avoid inhaling spray mist.

Wear a long-sleeved shirt and long pants during mixing, loading, application, clean-up and repair. In addition, wear goggles or a face shield and chemical-resistant gloves during mixing and loading, clean-up and repair.

The restricted entry interval is 12 hours after application for all agricultural uses.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically. This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia.

ENVIRONMENTAL HAZARDS

- TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

In case of an emergency involving this product, call Monsanto collect, day or night:

Accident/Spills/Medical Emergency (314) 694-4000
Or1-800-332-3111

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

For additional information on this or other Monsanto agricultural products, call the Monsanto Canada Custom Care Line at: 1-800-667-4944.

STORAGE

Avoid contamination of seed, feed, and foodstuffs.
Soak up small amounts of spill with absorbent clays.

DISPOSAL

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or

municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer and the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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R/T 540 Liquid Herbicide

Solution

AGRICULTURAL and INDUSTRIAL

CAUTION



POISON

WARNING - EYE AND SKIN IRRITANT

REGISTRATION NO. 28487 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: Glyphosate, 540 grams acid equivalent per litre, present as potassium salt.

Water Soluble Herbicide for non-selective weed control

READ THE LABEL BEFORE USING.

**MONSANTO CANADA ULC
900 – One Research Road
Winnipeg, Manitoba R3T 6E3
1-800-667-4944**

2017

(FRANÇAIS AU VERSO)

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R/T 540 Liquid Herbicide

1.0 PRODUCT DESCRIPTION

Water soluble herbicide for non-selective weed control in CROPLAND SYSTEMS AND IN NON-CROPLAND AREAS.

CROPLAND USES INCLUDE:

In cropping systems before planting of all crops; in minimum tillage systems; postemergent in TruFlex™ Roundup Ready® Canola, Roundup Ready® canola, soybean, corn and sugar beets; preharvest applications in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), peas, lentils, dry beans, soybeans, chickpeas, dried lupin, dried fava beans and forages; in pasture renovation; in forage, legume and grass establishments; in tree crops including apple, pear, cherry, plum, peach, apricot, filbert, hazelnut, walnut, chestnut, Japanese heartnut; in grapes, cranberries, blueberries and strawberry; in sugar beets; in asparagus; in North American ginseng; in tree plantings; and grasses for seed production.

NON-CROPLAND USES INCLUDE:

Industrial; recreational, rights-of-way, and public areas; turf grass renovation.

Not for relabelling or repackaging.

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2.0 EMERGENCY NUMBERS

In case of an emergency involving this product, call Monsanto collect, day or night:

Accident/Spills/Medical Emergency (314) 694-4000
Or1-800-332-3111

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

2.1 INFORMATION

For additional information on this or other Monsanto agricultural products, call the Monsanto Canada Custom Care Line at: 1-800-667-4944.

3.0 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.
HARMFUL IF SWALLOWED.
HARMFUL IF INHALED.
CAUSES EYE AND SKIN IRRITATION.
Avoid contact with eyes, skin or clothing.
Avoid inhaling spray mist.

Wear a long-sleeved shirt and long pants during mixing, loading, application, clean-up and repair. In addition, wear goggles or a face shield and chemical-resistant gloves during mixing and loading, clean-up and repair.

The restricted entry interval is 12 hours after application for all agricultural uses

3.1 FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

3.2 TOXICOLOGICAL INFORMATION

Treat symptomatically. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia.

3.3 ENVIRONMENTAL HAZARDS

- **TOXIC** to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under **DIRECTIONS FOR USE**.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

3.4 PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

3.5 STORAGE

Avoid contamination of seed, feed, and foodstuffs.
Soak up small amounts of spill with absorbent clays.

3.6 DISPOSAL AND DECONTAMINATION

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer and the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

DIRECTIONS FOR USE

4.0 GENERAL INFORMATION

Do not apply this product using aerial spray equipment except under conditions as specified within this booklet.

Glyphosate is not to be applied using hand-wicking or hand-daubing methods. Observe buffer zones specified in Section 5.3.

R/T 540 Liquid Herbicide, a water soluble liquid, mixes readily with water for application as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

This herbicide moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Delay application until vegetation has emerged to the stages described for control of such vegetation under the “**Annual and Perennial Weed Control**” (section 7.0 and 8.0) to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per hectare within the recommended range when weed growth is heavy or dense, or weeds are growing in an undisturbed (non-cultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This product does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Rainfall occurring within 60 minutes of treatment may result in reduced weed control. Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of run-off.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, R/T 540 Liquid Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to R/T 540 Liquid Herbicide and other Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for

- example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
 - Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options. • Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
 - For further information or to report suspected resistance, contact Monsanto Canada at 1-800-667-4944 or at www.Monsanto.ca

5.0 MIXING AND APPLICATION

5.1 PRECAUTIONS

ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

DO NOT USE IN GREENHOUSES. REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

Clean sprayers and parts immediately after using this product by thoroughly flushing with water. Do not contaminate water sources by disposal of wastes or cleaning of equipment.

NOTE: Use of this product in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

5.2 MIXING AND APPLICATION EQUIPMENT

MIXING WITH WATER

For ground or industrial type sprayers, fill the spray tank with one-half the required amount of water. Add the proper amount of herbicide, see “**Weed Control**” (sections 7.1 and 8.1) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent excessive foaming. Removing hose from tank immediately will avoid back siphoning into water source. Use of mechanical agitators may cause excessive foaming. Bypass lines should terminate at the bottom of the tank.

For use in knapsack sprayers, it is suggested that the proper amount of this herbicide be mixed with water in a larger container. Fill sprayer with the mixed solution.

TANK MIXING PROCEDURE

The following steps should be followed when adding tank mix partners, using a herbicide loading system or adding product directly into the tank:

1. Fill spray tank 3/4 full of water.
2. Start agitation and run for entire mixing and spraying operation.

3. Add required amount of the tank mix partner.
4. Flush herbicide loading tank and herbicide containers with water.
5. If using a herbicide loading system - ensure that the loading tank and lines to the pump are empty and flushed out with water before adding tank mix partner.
6. Add required amount of R/T 540 Liquid Herbicide.
7. Flush herbicide loading tank and herbicide containers with water.
8. If using a herbicide loading system - ensure that the loading tank and lines to the pump are flushed with water and empty before starting spray operation.

Always start and end the mixing and spraying operation with a clean system.

APPLICATION EQUIPMENT

BOOM EQUIPMENT

For control of perennial weeds and woody brush and trees listed in this booklet using conventional boom equipment – apply this product in 50 to 300 litres of clean water per hectare as a broadcast spray using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

For control of annual weeds listed in this booklet using conventional boom equipment – Apply this product in 50 to 100 litres of clean water per hectare as a broadcast spray, except as otherwise stated on this label using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

HAND HELD AND HIGH VOLUME EQUIPMENT (use coarse sprays only)

For control of weeds and woody brush and trees listed in the “Weed Control” section 6.0 of this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements – Unless otherwise specified, make a 0.67 percent solution of this product in water (0.67 litres of this product in 100 litres of water) and apply to foliage of vegetation to be controlled. For best results, use a 1.34 percent solution (1.34 litres of this product in 100 litres of water) on harder to control perennials such as field bindweed, hemp dogbane, milkweed and Canada thistle.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of run-off. Handgun applications should be properly directed to avoid spraying desirable plants.

SELECTIVE EQUIPMENT

Selective equipment such as **WIPER** and **ROLLER** applicators can be used for weed control in soy and dry beans, orchards, vineyards, cranberries, strawberries and non-crop areas. For information regarding use of this product with selective equipment, refer to “**Selective Equipment**” (section 9.12).

AERIAL EQUIPMENT

Aerial application can only be used for weed control in preharvest situations. Refer to sections 5.3, and 9.9.2 for more information.

Directions for use

Apply only by fixed-wing or rotary aircraft which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 - 1000) range.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate(s) recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of spotter planes is recommended.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking.

Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the Monsanto Canada Custom Care Line at 1-800-667-4944 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 30-100 litres per hectare.

5.3 BUFFER ZONES

- i) Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by

turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

ii) Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies).

Agricultural and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
		Aquatic habitats	Terrestrial habitats

Agricultural and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
		Aquatic habitats	Terrestrial habitats
Agricultural crop system and ground boom application method			
Pre-seeding applications for rye, cranberry, filberts, hazelnut and all other crops. Established pasture and summer fallow. Ginseng new garden.	1	1	1
Ginseng - existing established garden, Canola – Roundup Ready hybrid for seed production	2	1	1
Filberts or hazelnut, sugar beets (glyphosate tolerant varieties)	4	1	1
Corn (glyphosate non-tolerant varieties including grain, silage and ornamental types), sugar beet (glyphosate non-tolerant varieties), strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)	2	1	2
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), corn-sweet (glyphosate tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, chickpea, lupin (dried), fava bean (dried), asparagus, corn (glyphosate tolerant varieties), forage grasses and legume including seed production	3	1	2
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)	4	1	2
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes	3	1	3
Agricultural crop system and airblast application method (including mist blower)			
Pasture	1	20	30
Turfgrass (Prior to establishment or renovation)	2	25	35
Non-cropland system and ground boom application method			

Agricultural and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:		
		Aquatic habitats	Terrestrial habitats	
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	3*	
Non-cropland system and airblast application method (including mist blower)				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	30*	
Agricultural crop system and aerial application method	Wing type			
Rye, corn (glyphosate non-tolerant varieties), corn-sweet (glyphosate tolerant varieties), chickpea, lupin (dried), fava bean (dried), sugar beet (glyphosate non-tolerant varieties), all other crops for pre-seeding treatments only	Fixed and rotary wing	1	15	20
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
Sugar beets (glyphosate tolerant varieties)	Fixed wing	2	20	30
	Rotary wing	2	15	30
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30
Forage grasses and legume including seed production	Fixed and rotary wing	1	20	40

Agricultural and non-cropland systems		Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
			Aquatic habitats	Terrestrial habitats
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40
Summer fallow	Fixed wing	1	20	45
	Rotary wing	1	20	40
Corn (glyphosate tolerant varieties)	Fixed wing	2	20	50
	Rotary wing	2	20	45
Pasture	Fixed wing	1	30	70
	Rotary wing	1	30	55
Non-cropland system and aerial application method				
Non-crop land and industrial uses: rights-of way areas only	Fixed wing	3	100	NR
	Rotary wing	3	60	NR

* Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements, roads.
NR = Not Required

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

6.0 WEEDS CONTROLLED

This product controls many annual and perennial grasses, broadleaf weeds, and woody brush and trees when applied as recommended and under conditions described. For information on how to control specific weeds including herbicide rate, refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (sections 7.1 and 8.1). The following is a partial list of weeds controlled:

6.1 ANNUAL WEEDS

ANNUAL GRASSES

Barnyard Grass

Echinochloa crusgalli

Blue Grass (annual)

Poa annua

Crab Grass (large)

Digitaria sanguinalis

Crab Grass (smooth)

Digitaria ischaemum

Downy Brome-grass

Bromus tectorum

Fall Panicum

Panicum dichotomiflorum

Giant Foxtail

Setaria faberii

Green Foxtail

Setaria viridis

Persian Darnel

Lolium persicum

Volunteer Barley

Hordeum spp.

Volunteer Corn

Zea mays

Volunteer Wheat

Triticum spp.

Wild Oats

Avena fatua

Wild Proso Millet

Panicum miliaceum

Yellow Foxtail

Setaria glauca

OTHER**Dodder**

Cuscuta spp.

ANNUAL BROADLEAF WEEDS

Chickweed

Stellaria media

Cleavers

Galium aparine

Cocklebur

Xanthium strumarium

Corn Spurry

Spergula arvensis

Cow Cockle

Saponaria vaccaria

Eastern Black Nightshade

Solanum ptycanthum

Fleabane (Canada)

Erigeron canadensis

Flixweed

Descurainia sophia

Green Smartweed
Polygonum scabrum
Hempnettle
Galeopsis tetrahit
Kochia
Kochia scoparia
Lady's-Thumb
Polygonum persicaria
Lamb's-quarters (common)
Chenopodium album
Narrow-leaved Hawk's Beard
Crepis tectorum
Narrow-leaved Vetch
Vicia angustifolia
Night-flowering Catchfly
Silene noctiflora
Pennsylvania Smartweed
Polygonum pensylvanicum
Prickly Lettuce
Lactuca scariola
Ragweed (common)
Ambrosia artemisiifolia
Redroot Pigweed
Amaranthus retroflexus
Round-Leaved Mallow
Malva pusilla

Russian Thistle
Salsola pestifer
Shepherd's Purse
Capsella bursa-pastoris
Smooth Pigweed
Amaranthus hybridus
Sowthistle (annual)
Sonchus oleraceus
Stinkweed
Thlaspi arvense
Storksbill
Erodium cicutarium
Velvetleaf
Abutilon theophrasti
Volunteer Canola (rapeseed)
Brassica spp.
Volunteer Flax
Linum spp.
Wild Buckwheat
Polygonum convolvulus
Wild Mustard
Sinapis arvensis
Wild Tomato
Solanum triflorum

6.2 PERENNIAL WEEDS

PERENNIAL GRASSES/SEDGES

Blue Grass (Canada)
Poa compressa
Blue Grass (Kentucky)
Poa pratensis
Brome Grass (smooth)
Bromus inermis
Cattail (common)
Typha latifolia
Cottongrass
Eriophorum chamissonis

Foxtail Barley
Hordeum jubatum
Quackgrass
Elytrigia repens
Wire-Stemmed Muhly
Muhlenbergia frondosa
Yellow Nutsedge
Cyperus esculentus

PERENNIAL BROADLEAVED WEEDS

Alfalfa

Medicago spp.

Curled Dock

Rumex crispus

Dandelion

Taraxacum officinale

Field Bindweed

Convolvulus arvensis

Hemp Dogbane

Apocynum cannabinum

Hoary Cress

Cardaria draba

Knotweed (Japanese)

Polygonum cuspidatum

Milkweed (common)

Asclepias syriaca

Poison Ivy

Rhus radicans

Purple Loosestrife

Lythrum salicaria

Sow Thistle (perennial)

Sonchus arvensis

Thistle (Canada)

Cirsium arvense

Toad Flax

Linaria vulgaris

Wormwood (Absinth)

Artemisia absinthium

6.3 WOODY BRUSH AND TREES

Alder

Alnus spp.

Birch

Betula spp.

Broadleaved meadowsweet

Spiraea latifolia

Cedar

Thuja spp.

Cherry

Prunus spp.

Douglas Fir

Pseudotsuga spp.

Hemlock

Tsuga spp.

Maple

Acer spp.

Mountain-fly honeysuckle

Lonicera villosa

Pine

Pinus spp.

Poplar

Populus spp.

Raspberry/Salmonberry

Rubus spp.

Rhododendron (Canadian)

Rhododendron canadense

Sheep laurel

Kalmia angustifolia

Snowberry (Western)

Symphoricarpos occidentalis

Sweet fern

Comptonia peregrina

Willow

Salix spp.

Withrod

Viburnum cassinoides

CROPLAND USES

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR.

7.0 ANNUAL WEED CONTROL

The following tables provide rates and specific application instructions for control of the annual weeds listed.

7.1 ANNUAL WEED CONTROL WITH R/T 540 LIQUID HERBICIDE

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.5	Weeds up to 8 cm in height	Wild oats, green foxtail, volunteer barley, volunteer wheat Non-Roundup Ready volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed	For wild oats apply at 1- to 3- leaf stage. Add 350 mL of a surfactant registered for use such as Agral® 90, Ag Surf®, or Companion™ For heavy wild oat infestations use 0.67 L/ha rate.
0.67	Weeds 8 cm to 15 cm in height	All annual grasses listed above. All annual broadleaved weeds listed above plus flixweed*, and kochia*	Add 350 mL of surfactant registered for use as listed above. * Suppression only. Refer to higher rates of this table or tank mix table (section 7.2) for control options.
0.83 – 1.27	Weeds up to 15 cm in height	All annual grasses listed above plus downy brome, giant foxtail, and Persian darnel. All annual broadleaved weeds listed above plus cleavers, lamb's-quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, and narrow-leaved hawk's beard***	No surfactant required. For tank mix weed control options see section 7.2. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.
1.5	Weeds up to 15 cm in height	All annual grasses listed above plus crab grass and annual blue grass	For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
		All annual broadleaved weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sowthistle, and narrow-leaved vetch	
2.33	Weeds over 15 cm in height	All annual grasses and broadleaved weeds listed above	For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).

NOTE: For spot treatment, 0.5 to 2.33 litres per hectare is approximately equivalent to 5 – 23 mL/100m², respectively.

Agral is a registered trademark of Syngenta group company.

Ag Surf is a registered trademark of Interprovincial Cooperative Ltd.

Companion is a trademark of Dow AgroSciences LLC.

7.2 ANNUAL WEED CONTROL WITH R/T 540 LIQUID HERBICIDE TANK MIXTURES

FOR SUMMERFALLOW & MINIMUM TILLAGE SYSTEMS

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
R/T 540 Liquid Herbicide + Banvel® II Herbicide	0.5 – 0.67 + 0.29	Volunteer cereals, wild oats, green foxtail Non- Roundup Ready® volunteer canola (rapeseed), wild mustard, flixweed*, lamb's-quarters, lady's-thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix is registered for summerfallow use only . Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * R/T 540 Liquid Herbicide applied at 0.67 L/ha rate only. ** Suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant-see list in section 7.3.
R/T 540 Liquid Herbicide + Banvel® II Herbicide	0.61 – 1.27	Volunteer cereals, wild oats, green foxtail, downy brome, Persian darnel Non- Roundup Ready® volunteer canola	Use this tank mix prior to seeding in wheat, barley, rye, oats, field corn only (do not apply to sweet corn) . Certain broadleaved crops such as lentils, peas, canola and flax can

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
	+ 0.31	(rapeseed), wild mustard, flixweed, lamb's-quarters, lady's-thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed, wild buckwheat*, smartweed	<p>be injured by a pre-seeding application and so should not be planted to a field receiving this treatment.</p> <p>Annual grasses - apply any time between emergence and heading.</p> <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>The higher rate should be applied when weeds are under poor growing conditions such as drought.</p> <p>*1- to 4- leaf stage.</p>
R/T 540 Liquid Herbicide + Pardner® Herbicide	0.5 – 0.67 + 1.25	Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed, wild buckwheat* Redroot pigweed**, kochia**, wild oats**	<p>This tank mix is registered only for use in summerfallow, and prior to wheat, oats and barley in minimum tillage systems.</p> <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* Use R/T 540 Liquid Herbicide at 0.67 L/ha rate only for wild buckwheat control.</p> <p>** 0.67 L/ha rate, suppression only. See other tank mixtures for control options.</p> <p>Add 350 mL/ha of surfactant- see list in section 7.3</p>
R/T 540 Liquid Herbicide + 2,4-D ^A	0.83 – 1.27 +	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel Volunteer canola, (rapeseed) (non-Roundup Ready), wild mustard, flixweed,	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>No surfactant required.</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
	0.6 – 0.9 ⁴ or 1.2 – 1.5 ⁵	<p>redroot pigweed, lady’s-thumb, stinkweed, kochia, lamb’s-quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk’s beard***</p> <p>Volunteer Roundup Ready canola (1-4 leaf stage)⁴, bluebur⁴, burdock⁴, cocklebur⁴, common plantain⁴, daisy fleabane⁴, false flax⁴, false ragweed⁴, goat’s beard⁴, mustards⁴ (except dog and tansy), prickly lettuce⁴, ragweeds⁴, Russian pigweed⁴, shepherd’s purse⁴, stinging nettle⁴, sweet clover⁴, thyme-leaved spurge⁴, wild radish⁴, wild sunflower⁴</p> <p>Volunteer Roundup Ready canola (4-6 leaf stage)⁵, annual sowthistle⁵, common chickweed⁵, common purslane⁵, dog and tansy mustard⁵, oak-leaved goosefoot⁵, common groundsel⁵, hairy galinsoga⁵, hawkweed⁵, heal-all⁵, knotweed⁵, peppergrass⁵, pineapple weed⁵, prostrate pigweed⁵, purslane⁵, sheep sorrel⁵, smartweed⁵, tumble pigweed⁵, velvetleaf⁵, volunteer canola (rapeseed)⁵</p>	<p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p>⁴ 2,4-D at 0.6 – 0.9 L/ha (280 – 420 g ai/ha).</p> <p>⁵ 2,4-D at 1.2 – 1.5 L/ha (560 – 700 g ai/ha). Use a minimum of 80 L/ha water when using 2,4-D amine formulations at these rates.</p> <p>Use this tank mix prior to seeding or after seeding but before crop emergence in wheat, winter wheat, barley and rye.</p>
R/T 540 Liquid Herbicide	0.5 – 0.67	Volunteer cereals, wild oats*, green foxtail*	This tank mix is registered for summerfallow use only. Weeds

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
+ 2,4-D ^B	+ 1.2	Volunteer canola (rapeseed), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia Lamb's-quarters**, Russian thistle**	should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * Use R/T 540 Liquid Herbicide at 0.67 L/ha rate only for wild oat and green foxtail control. ** Suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant-see list in section 7.3
R/T 540 Liquid Herbicide + MCPA ^C 500 g/L formulation; if another formulation is used, adjust rate accordingly.	0.83 – 1.27 + 0.5 – 0.7 ¹ OR 0.5 – 1.0 ²	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian dandelion Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard*** Volunteer Roundup Ready canola (1-4 leaf stage) ^{1,2} , bluebur ³ , burdock ³ (before 4 leaf stage), false flax ³ , flixweed ³ , lamb's quarters ³ , mustards ³ (except dog and tansy), prickly lettuce ³ , ragweeds ³ , redroot pigweed ³ , Russian pigweed ³ , shepherd's purse ³ , stinkweed (field pennycress) ³ , vetch ³ ,	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. No surfactant required. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1,27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1,27 L/ha rate. ¹ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to peas. ² MCPA at 0.5 – 1.0 L/ha (250 – 500 g ai/ha) prior to wheat, barley, oats, corn (field and sweet) ^C , rye and flax. ³ MCPA at 0.7 – 1.0 L/ha (350 – 500 g ai/ha) only. Use this tank mix prior to seeding in wheat, barley, rye, oats, corn (field and sweet) ^C , flax and field peas ^C .

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
		wild radish ³ , wild sunflower ³	
R/T 540 Liquid Herbicide + Buctril M Herbicide	0.83 – 1.27 + 0.5 – 1.0 ¹	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel.</p> <p>Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***</p> <p>Volunteer Roundup Ready Canola (1-4 leaf stage)^{1,2}</p> <p>Seedlings up to the 4-leaf stage²: green smartweed, pale smartweed, lady's thumb, cow cockle, redroot pigweed, flixweed, bluebur, shepherd's purse, kochia³, Russian thistle³, scentless chamomile⁴, volunteer sunflower, night flowering catchfly, cocklebur, velvetleaf⁵, ball mustard, American nightshade</p> <p>Seedlings up to the 6-leaf stage²: wild tomato</p> <p>Seedlings up to the 8-leaf stage²: wild buckwheat, tartary</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>No surfactant required.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p>¹ Buctril M at 0.5 – 1.0 L/ha (280 – 560 g ai/ha) for all crops listed.</p> <p>² Buctril M at 1.0 L/ha (560 g ai/ha only).</p> <p>³ Spray before plants are 5 cm high.</p> <p>⁴ Spring annuals only.</p> <p>⁵ Spray before plants are 8 cm high.</p> <p>Use this tank mix prior to seeding in wheat, barley, rye, oats, corn, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow bromegrass, seedling</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
		buckwheat, common buckwheat, stinkweed, wild mustard, wormseed mustard, lamb's quarters, common ragweed, common groundsel Perennials (top growth) ² : Canada thistle, perennial sowthistle	streambank wheatgrass and reed canary grass.
R/T 540 Liquid Herbicide + MCPA amine (500 g/L formulation; if another formulation is used, adjust rate accordingly).	0.83 – 1.27 + 0.5 – 0.7	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel. Volunteer canola (rapeseed)(non Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard*** Volunteer Roundup Ready canola (1-4 leaf stage) ³ , bluebur ⁴ , burdock ⁴ (before 4-leaf stage), false flax ⁴ , flixweed ⁴ , lamb's quarters ⁴ , mustards ⁴ (except dog and tansy), prickly lettuce ⁴ , ragweeds ⁴ , redroot pigweed ⁴ , Russian pigweed ⁴ , shepherd's purse ⁴ , stinkweed ⁴ (field pennycress), vetch ⁴ , wild radish ⁴ , wild sunflower ⁴	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. No surfactant required. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate. ³ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to lentils and chickpeas. ⁴ MCPA amine at 0.7 L/ha (350 g ai/ha) only. Use this tank mix prior to seeding in lentil and chickpea. Under drought conditions, deep seeding and/or brief rain showers after seeding may cause injury to emerging seedlings in sprayer overlaps. No surfactant required.
R/T 540 Liquid	0.83 –	Volunteer cereals,	Use this tank mix in

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
Herbicide + Express Toss-N-Go Herbicide Or Express Toss-N-Go Dry Flowable 75% Herbicide	1.27 + 10 g/ha (7.5 g ai/ha)	Canada thistle (suppression), cow cockle, wild buckwheat, Canada fleabane common ragweed narrow-leaved hawk's beard, dandelion, downy brome, flixweed, giant foxtail, green foxtail, hempnettle, kochia, lady's thumb, lamb's quarters, persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer canola, volunteer flax, wild mustard, wild oats	summerfallow or prior to seeding wheat and barley . Refer to Express Toss-N-Go label for the appropriate weed growth stage. Add 350 mL/ha of surfactant –see list in section 7.3

♦ For foxtail barley, refer to “**Perennial Weed Control**” table (section 8.1).

^B 0.56 kg ai/ha of 2,4-D. ^{B, A} Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

^C Use only amine formulations of MCPA prior to seeding in corn and field peas.

Banvel II is a registered trademark of BASF Corporation.

Pardner and Bucril are registered trademarks of Bayer.

Express is a registered trademark of E.I.duPont de Nemours and Company.

Toss-N-Go is a registered trademark of E. I. duPont Canada Company.

7.3 SURFACTANT INFORMATION

NOTE:

Addition of Surfactant – R/T 540 Liquid Herbicide tank mixtures for annual weed control may require the addition of a surfactant registered for use such as Agral 90, Ag-Surf or Companion. Refer to Section 7.2 for recommendations. Surfactant should be added at a rate of 350 millilitres per hectare, in 50 100 litres of clean water.

7.4 ADDITIONAL IMPORTANT INFORMATION FOR ANNUAL WEED CONTROL

R/T 540 Liquid Herbicide applied alone will not control volunteers from crops containing the Roundup Ready varieties.

Allow at least 1 day after treatment before tillage.

Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds, in some situations.

For additional information and precautions, refer to “**General Information**” and “**Mixing and Application**” (sections 4.0 and 5.0).

7.5 WEED CONTROL IN TRUFLEX ROUNDUP READY CANOLA VARIETIES

WARNING: APPLY R/T 540 LIQUID HERBICIDE TO TRUFLEX ROUNDUP READY CANOLA VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) TRUFLEX ROUNDUP READY CANOLA SEED. CANOLA NOT DESIGNATED AS TRUFLEX ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- **For additional information and precautions refer to “General Information” and “Mixing and Application” (sections 4.0 and 5.0, respectively).**
- Apply to TRUFLEX ROUNDUP READY canola only as directed.

DO NOT APPLY BY AIR

The following table describes the rate and specific application instructions for weed control in TRUFLEX ROUNDUP READY canola varieties.

WEED CONTROL IN TRUFLEX ROUNDUP READY CANOLA VARIETIES

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
0.55-0.83 Single application	Emergence to first flower*	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’s-quarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers, wild buckwheat, shepherd’s purse¹, cow cockle¹, night-flowering catchfly¹, smartweed¹, <u>stork’s-bill, flixweed, narrow-leaved hawk’s beard</u></p> <p><u>Perennials: (Suppression)</u> Canada thistle, perennial sow thistle and dandelion</p> <p><u>Perennials: (Season-long control)</u> Quackgrass,</p>	<p>¹The 0.55 l/ha rate can be used for control of shepherd’s purse, cow cockle and night-flowering catchfly at the 1– 3 leaf stage of the crop or for control of smartweed at the 4 –6 leaf stage.</p> <p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p>
1.27 Single application	Emergence to first flower *	<p>All the above weeds plus: <u>Perennials (season-long control)</u> Canada thistle, and perennial sow thistle</p>	
0.83 Sequential applications	Emergence to first flower *	<p>All the above weeds plus: <u>Annual Broadleaves</u> round-leaved mallow</p> <p><u>Perennials (season-long control)</u> foxtail barley, Canada thistle, and perennial sow thistle</p>	For sequential applications, ensure the crop has not advanced beyond the recommended growth stage
1.67 Single application	Emergence to first flower *	<p>All the above weeds plus: Foxtail barley, smooth pigweed, common ragweed, cocklebur, eastern black nightshade, pennsylvania smartweed, foxtail (yellow and giant), fall panicum, wild proso millet, crabgrass (smooth and large), velvet leaf, biennial wormwood² wire-stemmed muhly, volunteer adzuki beans³</p> <p>(Suppression only)</p>	<p>² Biennial wormwood should be at 2-8 leaf stage and actively growing.</p> <p>³For control of volunteer adzuki beans (unifoliolate to the 4th trifoliolate leaf stage) apply 1.67 L/ha. A second 1.67 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans</p>

		Common Milkweed Yellow nutsedge	should be at unifoliate to fourth trifoliate leaf stage and actively growing.
1.67 Sequential applications	Emergence to first flower *	All the above weeds plus: <u>Perennials (season-long control)</u> Dandelion Common Milkweed Field Bindweed Yellow nutsedge Horsenettle, Tall waterhemp Bur cucumber	A sequential application may be made at least 2 weeks after the first application. A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. Common milkweed should be 15-60 cm in height and actively growing. Yellow nutsedge should be 5-15 cm in height and actively growing. Horse-nettle (2-12-leaf stage) Tall waterhemp up to and including the 18 leaf stage) Bur Cucumber from the 1-18 leaf stage.
3.33 Single application	Emergence to 6 leaf	All the above weeds	One application allowed in crop per season

* First flower is when 50% of the plants in the field have no more than one flower.

Ensure the crop has not advanced beyond the recommended growth stage for all applications.

Guidelines:

Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.

Maximum 3.33L/ha is allowed for the postemergence use.

7.5.1 TRUFLEX ROUNDUP READY HYBRID CANOLA SEED PRODUCTION

For Use only in TRUFLEX ROUNDUP READY Canola Seed Production Systems

Apply using ground boom spray equipment.

R/T 540 Liquid Herbicide may be applied for the control of non-glyphosate tolerant canola pollen parental line(s) in hybrid canola seed production fields containing both TRUFLEX ROUNDUP READY canola line(s) and non-TRUFLEX ROUNDUP READY canola line(s).

When pollination is complete or near completion, non-TRUFLEX ROUNDUP READY canola pollen parental line(s) may be controlled with an application of 0.83 to 1.67 litres per hectare of R/T 540 Liquid Herbicide applied in 50 to 200 litres per hectare water.

Sequential applications (**maximum 2 applications**) may be used for the control of pollen parental line(s) but the total maximum rate applied must not exceed 1.67 litres per hectare. Allow at least 5 days between sequential applications.

7.6 WEED CONTROL IN ROUNDUP READY® CANOLA VARIETIES

WARNING: APPLY R/T 540 LIQUID HERBICIDE ON ROUNDUP READY® CANOLA VARIETIES ONLY

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) ROUNDUP READY® CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS ROUNDUP READY® WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to “General Information” and “Mixing and Application” (sections 4.0 and 5.0).
- Apply R/T 540 Liquid Herbicide in Roundup Ready® canola varieties only as directed in the following weed control table.
- Some short-term, visual yellowing may occur when R/T 540 Liquid Herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT APPLY BY AIR.

The following table describes the rate and specific application instructions for control of annual and perennial weeds in Roundup Ready® canola varieties.

WEED CONTROL IN ROUNDUP READY CANOLA VARIETIES

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
0.55 – 1.27	0 to 6 leaf	<u>Annual Grasses</u> Wild oats, green foxtail,	Repeat applications may be required if a second flush of

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
		<p>volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’s-quarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers*, wild buckwheat*, shepherd’s purse*, cow cockle*, night-flowering catchfly*, smartweed*, stork’s-bill*, flixweed*, narrow-leaved hawk’s beard*, round-leaved mallow***</p> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sow thistle, dandelion</p> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sow thistle****</p>	<p>weeds germinates prior to canopy closure.</p> <p>Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use 0.83 L/ha for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd’s purse, cow cockle and night-flowering catchfly at the 1– to 3-leaf stage of the crop or for control of smartweed at the 4– to 6-leaf stage.</p> <p>** A single application of 0.83 L/ha rate is required.</p> <p>*** Sequential applications of 0.83 L/ha rate are required.</p> <p>**** Sequential applications of 0.83 L/ha or a single application of 1.27 L/ha are required.</p> <p>For sequential applications, ensure the crop has not advanced beyond the recommended growth stage.</p> <p>Maximum 1.66 L/ha is allowed for the postemergence use.</p>

7.6.1 TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in Roundup Ready® canola varieties, apply a tank mixture of 0.28 L/ha of Lontrel 360 Herbicide with 0.83 L/ha of R/T 540 Liquid Herbicide, in 100 litres of water per hectare. Apply when canola is in the 2- to 6-leaf stage. Refer to the Lontrel 360 Herbicide and to the R/T 540 Liquid Herbicide labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

Lontrel is a registered trademark of Dow AgroSciences LLC.

7.6.2 ROUNDUP READY® HYBRID CANOLA SEED PRODUCTION

For Use only in Roundup Ready® Hybrid Canola Seed Production Systems

Apply using ground boom spray equipment.

R/T 540 Liquid Herbicide may be applied for the control of non- Roundup Ready® canola pollen parental line(s) in hybrid canola seed production fields containing both Roundup Ready® line(s) and non- Roundup Ready® line(s).

When pollination is complete or near completion, non- Roundup Ready® canola pollen parental line(s) may be controlled with an application of 0.83 to 1.67 litres per hectare of R/T 540 Liquid Herbicide applied in 50 to 200 litres per hectare water.

Sequential applications (**maximum 2 applications**) may be used for the control of pollen parental line(s) but the total maximum rate applied must not exceed 1.67 litres per hectare. Allow at least 5 days between sequential applications.

7.7 WEED CONTROL IN ROUNDUP READY OR ROUNDUP READY2 YIELD® SOYBEAN VARIETIES

7.7.1 WEED CONTROL IN ROUNDUP READY2 YIELD SOYBEAN VARIETIES

WARNING: APPLY R/T 540 LIQUID HERBICIDE ON ROUNDUP READY2 YIELD SOYBEAN VARIETIES ONLY.

NOTE: ROUNDUP READY 2 YIELD SOYBEAN VARIETIES ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN R/T 540 LIQUID HERBICIDE. ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY2 YIELD. SOYBEANS WHICH ARE NOT DESIGNATED AS ROUNDUP READY2 YIELD WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
1.67	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth,	¹ A single application of 1.67 L/ha will provide suppression only. ² For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be applied at least 2 weeks after the first application.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (Use 100 – 200 L/ha water volumes)
		<p>large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, Russian thistle, non- Roundup Ready® canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night flowering catchfly, stork's bill, flixweed, narrow leaved hawk's-beard</p> <p>common milkweed^{1,2}, yellow nutsedge^{1,2}, field bindweed², perennial sow thistle, Canada thistle. wire-stemmed muhly.</p> <p>Bur cucumber (<i>Sicyos angulatus</i>)³</p> <p>Volunteer adzuki beans (<i>Vigna angularis</i>)⁴</p> <p>Biennial Wormwood (<i>Artemisia biennis</i>)⁵</p>	<ul style="list-style-type: none"> • A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application made must be applied no later than the flowering stage of the soybean. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. • Wire-stemmed muhly should be 10-20 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment. • ³Sequential applications of 1.67 L/ha followed by 1.67 L/ha at the 1-18 leaf stage. Applications should be at least 2 weeks apart for best results. • ⁴For control of volunteer adzuki beans (unifoliate to the 4th trifoliate leaf stage) apply 1.67 L/ha. A second 1.67 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliate to fourth trifoliate leaf stage

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
			<p>and actively growing</p> <ul style="list-style-type: none"> • ⁵ Only one application per season at 1.67L/ha. Biennial wormwood should be at 2-8 leaf stage and actively growing.
3.33	First trifoliolate leaf stage through flowering	All weeds listed above plus horse-nettle ⁶ and tall waterhemp ⁷	<ul style="list-style-type: none"> • Only one application per season at 3.33 L/ha. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment. <p>⁶ For season-long control of horse-nettle (<i>Solanum carolinense</i>) (2- to 12-leaf stage) or, for control of tall waterhemp (<i>Amaranthus tuberculatos</i>) (up to and including the 18-leaf stage) apply 3.33 L/ha. Alternatively, sequential applications of 1.67 L/ha followed by 1.67 L/ha may be applied. Applications should be at least 2 weeks apart for best results.</p> <p>⁷For the control of Tall Waterhemp use the higher rate if weeds are beyond the 6-leaf stage.</p>
4.67	First trifoliolate leaf stage through flowering	All weeds listed above plus control of volunteer alfalfa and bromegrass	<p>Only one application per season at 4.67 L/ha.</p> <p>Alfalfa should have 9 or more leaves and be at least 10-15 cm tall.</p>

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
			<p>Bromegrass should have at least 3-5 leaves and be at least 10-15 cm tall.</p> <p>Short term yellowing may occur in sprayer overlap areas with the 4.67 L/ha application rate. This effect is temporary and will not influence crop growth or yield.</p>

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

7.7.2 WEED CONTROL IN ROUNDUP READY SOYBEAN VARIETIES

WARNING: APPLY R/T 540 LIQUID HERBICIDE ON ROUNDUP READY SOYBEAN VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY. SOYBEANS WHICH ARE NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

Apply 1.67 – 3.33 L/ha of R/T 540 Liquid Herbicide to Roundup Ready soybean varieties.

See Section 7.6.1 for use directions.

Do not apply the 4.67 L/ha rate to non-Roundup Ready² Yield soybean varieties.

7.7.3 TANK MIXTURES

Tank mixtures may be applied to both Roundup Ready² Yield and Roundup Ready soybean varieties.

R/T 540 Liquid Herbicide Plus Pursuit® Herbicide

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit herbicide may be tank mixed with R/T 540 Liquid Herbicide at a rate of 1.67 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit and apply up to and including the 3rd trifoliolate leaf stage of the Roundup Ready soybeans varieties in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit as per instructions on the Pursuit label and then add R/T 540 Liquid Herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of R/T 540 Liquid Herbicide and Pursuit herbicide on Roundup Ready2 Yield soybeans.

Only one application per season of R/T 540 Liquid Herbicide at 1.67 litres per hectare tank mixed with Pursuit herbicide at 0.16 to 0.21 litres per hectare is permitted.

Refer to the Pursuit herbicide label for further safety precautions and handling instructions.

**R/T 540 Liquid Herbicide Plus FirstRate™ Herbicide Water Dispersible Granule
(For Use in Eastern Canada Only)**

For added residual control of common ragweed, velvetleaf, cocklebur, jimsonweed and giant ragweed, FirstRate Herbicide Water Dispersible Granule may be tank mixed with R/T 540 Liquid Herbicide at a rate of 0.83 - 1.67 liters per hectare. Use 20.8 grams per hectare of FirstRate Herbicide Water Dispersible Granule.

Do not harvest soybean plants for forage or hay. Do not harvest soybeans for 65 days after application.

Only one application per season of R/T 540 Liquid Herbicide tank mixed with FirstRate Herbicide Water Dispersible Granule is permitted.

Refer to the FirstRate Herbicide Water Dispersible Granule label for further safety precautions and handling instructions.

R/T 540 Liquid Herbicide and Classic 25 DF Herbicide*

For season-long control of dandelion, annual sow thistle, and yellow nutsedge*, apply Classic 25 DF Herbicide at 36 grams per hectare plus either R/T 540 Liquid Herbicide at 1.67 litres per hectare. Add a non-ionic surfactant such as Agral 90, Citowett Plus, or Ag-Surf at 0.2% v/v. Apply when soybeans are in the 1-3 trifoliolate stage; dandelions and annual sow thistle less than 15 cm tall and across; and up to the 8 leaf stage for yellow nutsedge. USE THIS TANK MIXTURE ONLY ON SOYBEANS WITH THE ROUNDUP READY® TRAIT.

Consult the Classic 25 DF Herbicide label for tank mixing instructions and use precautions including instructions on replanting to other crops.

*Use this tank mix only in cases of heavy infestation of yellow nutsedge.

R/T 540 Liquid Herbicide plus Sencor® 75 DF Herbicide for Control of Spreading Atriplex (Eastern Canada only)

For the control of spreading atriplex, apply a preplant application of Sencor 75 DF Herbicide at 0.75 - 1.11 kg product per hectare on medium textured soils or 1.11 – 1.5 kg product per hectare on fine textured soils plus R/T 540 Liquid Herbicide at 1.67 litres per hectare. Do not apply on coarse textured soils. Apply when spreading atriplex is up to the 10-leaf stage of growth. Only one application per year is permitted.

Refer to the Sencor 75 DF Herbicide label for further use directions, safety precautions and handling instructions. Consult Table entitled "Sencor 75 DF Alone: Preemergence Application" for specific rates based on soil types and organic matter.

R/T 540 Liquid Herbicide plus Assure® II Herbicide

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS
1.67 – 3.33 L/ha R/T 540 Liquid Herbicide + 0.25 - 0.38 L/ha Assure II Herbicide	First trifoliolate leaf stage through flowering.	Volunteer Roundup Ready corn. Apply at the 2- to 6-leaf stage of the weed.	See additional information following this table.

*Sure Mix may or may not be added to this tank mix

◆ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

Volunteer Roundup Ready Corn Control

For control of volunteer Roundup Ready corn, Assure II herbicide may be tank mixed with R/T 540 Liquid Herbicide. Use 1.67 to 3.33 litres per hectare R/T 540 Liquid Herbicide and 0.25 - 0.38 litre per hectare of Assure II herbicide.

The higher rate of Assure II may be required when there are high populations of volunteer Roundup Ready corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 300 litres per hectare of clean water.

Mixing: Add and mix Assure II herbicide as per instructions on the Assure II herbicide label and then add R/T 540 Liquid Herbicide as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliolate leaf stage through flowering and when the volunteer Roundup Ready corn is at the 2- to 6-leaf stage.

A PHI (preharvest interval) of 80 days is required for the tank-mix of R/T 540 Liquid Herbicide and Assure II herbicide on Roundup Ready2 Yield soybeans.

Refer to the Assure II Herbicide label for further safety precautions and handling instructions.

R/T 540 Liquid Herbicide plus Venture® L Herbicide

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED ♦	COMMENTS
1.67 – 3.33 L/ha R/T 540 Liquid Herbicide + 0.45 - 0.60 L/ha Venture L Herbicide**	First trifoliolate leaf stage through third trifoliolate leaf stage	Volunteer Roundup Ready corn. Apply at the 2- to 5-leaf stage of the weed.	See additional information following this table.

*Turbocharge may or may not be added to this tank mix

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

For control of volunteer Roundup Ready corn, Venture L Herbicide may be tank mixed with R/T 540 Liquid Herbicide. Use 1.67 to 3.33 litres per hectare R/T 540 Liquid Herbicide and 0.45 - 0.60 litre per hectare of Venture L Herbicide.

The higher rate of Venture L Herbicide may be required when there are high populations of volunteer Roundup Ready corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 200 litres per hectare of clean water.

Mixing: Add and mix Venture L Herbicide as per instructions on the Venture L Herbicide label and then add R/T 540 Liquid Herbicide as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliate leaf stage through third trifoliate leaf stage and when the volunteer Roundup Ready corn is at the 2- to 5- leaf stage.

A PHI (preharvest interval) of 90 days is required for the tank-mix of R/T 540 Liquid Herbicide and Venture L Herbicide on Roundup Ready2 Yield and Roundup Ready soybean varieties.

Refer to the Venture L Herbicide label for further safety precautions and handling instructions.

FirstRate is a trademark of Dow AgroSciences LLC.

Pursuit is a registered trademark of BASF.

Sencor is a registered trademark of Bayer.

Assure and Classic are registered trademarks of E.I. duPont de Nemours and Company.

Venture is a registered trademark of a Syngenta group company.

7.8 WEED CONTROL IN CORN VARIETIES WITH ROUNDUP READY® 2 TECHNOLOGY

WARNING: APPLY R/T 540 LIQUID HERBICIDE ONLY ON CORN VARIETIES THAT ARE DESIGNATED AS CONTAINING ROUNDUP READY® CORN 2 TECHNOLOGY

NOTE: CORN VARIETIES CONTAINING ROUNDUP READY® CORN 2 TECHNOLOGY ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN R/T 540 LIQUID HERBICIDE. ALWAYS USE PEDIGREED (I.E., CERTIFIED) CORN SEED DESIGNATED AS CONTAINING ROUNDUP READY® 2. TECHNOLOGY. CORN WHICH IS NOT DESIGNATED AS CONTAINING ROUNDUP READY® 2 TECHNOLOGY MAY BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (use 100-200 L/ha water volumes)
1.67	Up to and including 8 leaf stage	<p>Velvetleaf, common ragweed, common lamb's-quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, wild mustard, Russian thistle, non-Roundup Ready canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night-flowering catchfly, stork's-bill, flixweed, narrow-leaved hawk's-beard</p> <p>common milkweed^{1,2}, yellow nutsedge^{1,2}, round-leaved mallow², field bindweed², perennial sow thistle, Canada thistle, wire-stemmed muhly</p>	<p>¹ A single application of 1.67 L/ha will provide suppression only.</p> <p>² For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be used at least 2 weeks after the first application.</p> <ul style="list-style-type: none"> • A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application must be applied no later than the 8 leaf stage of the corn. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. • Wire-stemmed muhly should be 10-20 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment.
3.33	Up to and including 6 leaf stage	All weeds listed above	<ul style="list-style-type: none"> • Only one application per season at 3.33 L/ha. • Common milkweed should be 15-60 cm in height and actively growing.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (use 100-200 L/ha water volumes)
			<ul style="list-style-type: none"> • Yellow nutsedge should be 5-15 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment.

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

7.8.1 TANK MIXTURES

For tank mixtures, add herbicide according to instructions on the product label, and then add R/T 540 Liquid Herbicide according to instructions on this label (section 5). Refer to the tank mix herbicide product labels for further safety precautions and product handling instructions.

DO NOT APPLY BY AIR

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100-200 L/ha water volumes)
1.67 L/ha R/T 540 Liquid Herbicide + 0.75 – 1.0 kg ai/ha atrazine*	Up to and including the 5-leaf stage.	Residual control of lamb's-quarters, redroot pigweed, common ragweed.	Tank-mix should be used when only a single application timing is desired. Use the higher rate of atrazine for heavier weed infestations.
1.67 L/ha R/T 540 Liquid Herbicide + 2.5 – 3.7 L/ha Marksman Herbicide	Up to and including the 5-leaf stage.	Residual control of lamb's-quarters, redroot pigweed, common ragweed, velvetleaf.	Tank-mix should be used when only a single application timing is desired. Use the higher rate of Marksman for heavier weed infestations.

<p>One application: 1.67 L/ha R/T 540 Liquid Herbicide + 0.56 – 1.12 L/ha 2,4-D Herbicide**</p>	<p>Before the corn is 15 cm tall (leaf extended) and/or before the 6 leaf stage.</p>	<p>Volunteer Roundup Ready canola – up to the 4 leaf stage.</p>	<p>Tank mix is most effective when treating small (4 leaf or less) canola plants.</p>
<p>Two applications: First application: 1.67 L/ha R/T 540 Liquid Herbicide + 0.56 L/ha 2,4-D Herbicide** Second application: 1.67 L/ha R/T 540 Liquid Herbicide + 0.42-0.56 L/ha 2,4-D Herbicide**</p>	<p>Before the corn is 15 cm tall (leaf extended) and/or before the 6 leaf stage.</p>	<p>Volunteer Roundup Ready canola – up to the 4 leaf stage.</p>	<p>Tank mix is most effective when treating small (4 leaf or less) canola plants.</p>
<p>1.67 L/ha R/T 540 Liquid Herbicide + 13.3 g/ha Peak 75WG Herbicide + 0.3 L/ha Banvel II Herbicide + non ionic surfactant (0.2% v/v)</p>	<p>Spike up to and including the 5 leaf stage.</p>	<p>Volunteer Roundup Ready canola – up to the 4 leaf stage.</p>	<p>Tank mix is most effective when treating small (4 leaf or less) canola plants.</p>
<p>1.67 L/ha R/T 540 Liquid Herbicide + 1.1 L/ha Dyvel DSp Liquid Herbicide</p>	<p>Before the corn is 15 cm tall (leaf extended)</p>	<p>Volunteer Roundup Ready canola – up to the 4 leaf stage.</p>	<p>Tank mix is most effective when treating small (4 leaf or less) canola plants.</p>

<p>1.67 L/ha R/T 540 Liquid Herbicide + 0.21 L/ha Callisto® 480SC Herbicide</p>	<p>3-8 leaf stage of corn</p>	<p>Eastern black nightshade, velvetleaf, redroot pigweed, common ragweed (suppression only) plus emerged annual and perennial weeds</p>	<p>Add Agral 90 at 0.2% v/v</p> <p>Apply up to the 8 leaf stage of broadleaf weeds</p> <p>Some perennial weeds may not be controlled with these rates</p>
<p>1.67 L/ha R/T 540 Liquid Herbicide + 0.21 L/ha Callisto 480SC Herbicide + 0.58 L/ha Aatrex Liquid 480 Herbicide</p>	<p>3 - 8 leaf stage of corn</p>	<p>Eastern black nightshade, velvetleaf, redroot pigweed, common ragweed plus emerged annual and perennial weeds</p>	<p>Add Agral 90 at 0.2% v/v</p> <p>Apply up to the 8 leaf stage of broadleaf weeds</p> <p>Some perennial weeds may not be controlled with these rates</p>
<p>1.67 L/ha R/T 540 Liquid Herbicide + 2.5 L/ha Primextra® II Magnum® Herbicide</p>	<p>Apply up to and including 6 leaf stage of corn.</p>	<p>Annual grasses and broadleaf weeds, emerged annual or perennial weeds</p>	<p>This tank mix requires the use of a surfactant. AGRAL 90 or Ag-Surf may be used.</p> <p>Do NOT apply this tank-mix to soils with less than 1% or more than 10% organic matter</p>
<p>1.67 L/ha R/T 540 Liquid Herbicide + 0.625 L/ha Banvel II Herbicide</p>	<p>Spike to 5 leaf</p>	<p>Weeds controlled by R/T 540 plus improved control of Velvetleaf and extended control of late germinating, deep rooted annuals on the Banvel II Herbicide label.</p>	

1.67 L/ha R/T 540 Liquid Herbicide + 285 g/ha Distinct Herbicide + Non ionic surfactant + 28% UAN	2 to 6 leaf	Weeds controlled by R/T 540 plus extended control of late emerging weeds listed on the Distinct Herbicide label.	Non-ionic surfactant applied at 0.2% v/v 28% UAN applied at 1.25% v/v
1.67 L/ha R/T 540 Liquid Herbicide + 1.25 L/ha Dual II Magnum Herbicide + 1.0 kg ai/ha atrazine*	Spike to 6 leaf	Weeds controlled by R/T 540 plus extended control of annual grass and broadleaf weeds on the tank mix partner labels.	
1.67 L/ha R/T 540 Liquid Herbicide + 4.2 L/ha Prowl 400EC Herbicide + 1.0 kg ai/ha atrazine*	Up to and including the 4 leaf stage of corn	Weeds controlled by R/T 540 plus extended control of annual grass and broadleaf weeds on the tank mix partner labels.	
1.67 L/ha R/T 540 Liquid Herbicide + 0.21 L/ha Callisto 480SC Herbicide + Non ionic surfactant	3 to 8 leaf stage of corn	Weeds controlled by R/T 540 plus extended control of eastern black nightshade, velvetleaf, redroot pigweed, and common ragweed.	Add non ionic surfactant at 0.2%v/v
1.67 L/ha R/T 540 Liquid Herbicide Liquid Herbicide + 2.5 - 3.0 L/ha Primextra II Magnum Herbicide	Spike to 6 leaf stage of corn	Weeds controlled by R/T 540 plus extended control of annual grass and broadleaf weeds on the Primextra II Magnum label.	

* 0.75 to 1.0 kilogram active ingredient atrazine per hectare is equivalent to 1.56 to 2.08 litres per hectare of Aatrex Liquid 480™.

** 500 g ai/litre of 2,4-D formulation. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D. Some corn hybrids may be injured by an application of 2,4-D. It is recommended that the corn seed provider be contacted regarding the tolerance of the corn hybrid to be treated, to 2,4-D prior to application of this tank mix.

◆ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

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Marksman, Banvel II and Dyvel DS are registered trademarks of BASF Corporation.

7.9 WEED CONTROL IN SWEET CORN VARIETIES WITH ROUNDUP READY 2 TECHNOLOGY

WARNING: APPLY R/T 540 LIQUID HERBICIDE ON ONLY SWEET CORN VARIETIES THAT ARE DESIGNATED AS CONTAINING ROUNDUP READY 2 TECHNOLOGY (I.E. CONTAINS A ROUNDUP READY GENE).

NOTE: SWEET CORN VARIETIES CONTAINING ROUNDUP READY 2 TECHNOLOGY ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN R/T 540 LIQUID HERBICIDE. ALWAYS USE PEDIGREED (I.E. CERTIFIED) SWEET CORN SEED DESIGNATED AS CONTAINING ROUNDUP READY 2 TECHNOLOGY. SWEET CORN WHICH IS NOT DESIGNATED AS CONTAINING ROUNDUP READY 2 TECHNOLOGY MAY BE DAMAGED OR DESTROYED BY THIS TREATMENT.

WEED CONTROL:

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (use 100-200 L/ha water volumes)
1.67	Up to and including 8 leaf stage	See Weeds Controlled in Section 7.7 Table	<ul style="list-style-type: none"> • See Comments in Section 7.7 Table • A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application must be applied no later than the 8 leaf stage of the corn.
3.33	Up to and including 6 leaf stage	See Weeds Controlled in Section 7.7 Table	<ul style="list-style-type: none"> • See Comments in Section 7.7 Table • Only one application per season at 3.33 L/ha.

◆ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

◆ Plants not fully emerged at the time of application will escape treatment.

TANK MIXES - Do not apply Tank Mixes to sweet corn varieties with Roundup Ready 2 Technology

Allow a minimum of 30 days between application of this product and harvest.

DO NOT APPLY BY AIR

7.10 WEED CONTROL IN ROUNDUP READY® SUGAR BEETS VARIETIES

WARNING: APPLY R/T 540 LIQUID HERBICIDE ON ROUNDUP READY® SUGAR BEET VARIETIES ONLY

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SUGAR BEET SEED DESIGNATED AS ROUNDUP READY®. SUGAR BEET WHICH ARE NOT DESIGNATED AS ROUNDUP READY® WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

For weed control in Roundup Ready® sugar beets apply 0.83 – 1.67 L/ha of R/T 540 Liquid Herbicide to emerged weeds. Refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (Sections 7.1 and 8.1, respectively) for a listing of weeds controlled.

Apply R/T 540 Liquid Herbicide to emerged weeds up to 15 cm in height.

Up to four applications of R/T 540 Liquid Herbicide may be applied to Roundup Ready® sugar beets. Allow a minimum of 10 days between applications.

Do not harvest Roundup Ready® sugar beets within 30 days after the final application of R/T 540 Liquid Herbicide.

7.11 WEED CONTROL IN ROUNDUP READY ALFALFA VARIETIES (DO NOT APPLY TO ALFALFA GROWN FOR SEED PRODUCTION)

WARNING: APPLY R/T 540 LIQUID HERBICIDE TO ROUNDUP READY ALFALFA VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E. CERTIFIED) ALFALFA SEED DESIGNATED AS ROUNDUP READY. ALFALFA SEED WHICH IS NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

ROUNDUP READY ALFALFA VARIETIES ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN R/T 540 LIQUID HERBICIDE.

DO NOT APPLY BY AIR.

Applications can be made from emergence until 5 days prior to cutting.

A sequential treatment may be applied to Roundup Ready alfalfa varieties for control of late weed flushes.

Allow a minimum of 5 days between application and cutting of alfalfa.

Additional applications of this product should be at least 25 days apart.

Total number of in-crop applications not to exceed 3 per growing season.

New Stand Establishment (Seedling Year): Due to the biology and breeding constraints of alfalfa, up to 10 percent of the seedlings may not contain a Roundup Ready gene and will not survive or thrive after the first application of this product. To limit the undesirable effects of stand gaps created by the loss of alfalfa plants not containing a Roundup Ready gene, an application of this product should be applied at or before the 4 trifoliate leaf stage of alfalfa during the establishment (seedling) year.

Note: Where Roundup Ready alfalfa is grown with a companion or cover crop, or is overseeded with a second species, in-crop (over-the-top) applications of this product will eliminate the non-Roundup Ready (non-glyphosate tolerant) species.

WEED CONTROL IN ROUNDUP READY ALFALFA VARIETIES

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
1.67 single application	Emergence until 5 days prior to cutting	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass, giant and yellow foxtail, fall Panicum, wild proso millet, smooth and large crabgrass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's-quarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady's-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers, wild buckwheat, shepherd's purse, cow cockle, night-flowering catchfly, smartweed, stork's-bill, flixweed, narrow-leaved hawk's beard, smooth pigweed, cocklebur, Eastern black nightshade, velvetleaf, biennial wormwood¹.</p> <p><u>Perennials (season-long control)</u> Quackgrass, Canada thistle, and perennial sow thistle, foxtail barley, dandelion.</p>	<p>All weeds should be actively growing at time of application.</p> <p>¹Biennial wormwood should be at 2-8 leaf stage.</p>
3.33 single application	Emergence until 5 days prior to cutting	<p><u>All the above weeds plus:</u></p> <p><u>Annual Broadleaves</u> Round-leaved mallow</p> <p><u>Perennials (season-long control):</u> Foxtail barley², dandelion², common milkweed³, field bindweed, yellow nutsedge⁴, horsenettle⁵, tall waterhemp⁶, bur cucumber⁷</p>	<p>²3.33 L/ha rate is for large, more established plants, heavy infestation or if plants are stressed.</p> <p>³Common milkweed should be 15-60 cm in height.</p> <p>⁴Yellow nutsedge should be 5-15 cm in height.</p> <p>⁵Horse-nettle from the 2 to 12 leaf stage).</p> <p>⁶Tall waterhemp up to and including the 18-leaf stage.</p> <p>⁷Bur cucumber from the 1-18 leaf stage.</p>

8.0 PERENNIAL WEED CONTROL

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR.

When applied as recommended under the conditions described, this product will control the perennial weeds listed in the following table.

8.1 PERENNIAL WEED CONTROL WITH R/T 540 LIQUID HERBICIDE

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Quackgrass (control, light to moderate infestations)	3 to 4 green leaves or more	1.67	50 - 300	<p>Apply in clean water using flat fan nozzles.</p> <p>Allow 3 or more days after treatment before tillage.</p> <p>Refer to “Quackgrass” notes in section 8.2.1 for more information.</p> <p>For higher volumes (i.e., 150 – 300 L/ha) an approved surfactant must be added at 0.5 L per 100 L of clean water (0.5% v/v). Refer to list in section 8.2.2. See also below.</p>
Quackgrass (long term control, heavy infestations, high water volumes)	3 to 4 green leaves or more	1.67 – 4.67	50 - 300	<p>Allow 3 or more days after treatment before tillage.</p> <p>Rates higher than 1.67 L/ha will provide more consistent, longer term control, especially with heavier infestations and/or higher water volumes (i.e., 150 – 300 L/ha).</p> <p>Refer to “Quackgrass” notes in section 8.2.1 for more information.</p>
Canada Thistle	Rosette stage (summerfallow)	1.67	50 - 100	<p>Apply in clean water using flat fan nozzles.</p> <p>Allow 10 or more days after treatment before tillage.</p> <p>Refer to “Canada Thistle” notes in section 8.2.3 for more information.</p>
Canada Thistle	Bud stage or beyond	3.17 – 4.67	100 - 300	<p>Allow 5 or more days after treatment before tillage.</p>
Field Bindweed	Full bloom or beyond	4.67 – 8.0	100 - 300	<p>Allow 7 or more days after treatment before tillage.</p>

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Common Milkweed*	Bud to full bloom (preharvest)	1.67	50 – 100	See “ Preharvest Treatment ” (section 9.9) for more information.
	Bud to full bloom	8.0	100 - 300	Allow 7 or more days after treatment before tillage. Reduced control may occur after full bloom. Common milkweed may not all be in the correct stage, therefore, repeat treatments may be required.
Toadflax	Vegetative Stage (summerfallow)	1.67	50 - 100	Apply in clean water using flat fan nozzles.
	Bud to full bloom (preharvest)			Allow 7 or more days after treatment before tillage in summerfallow. For more information, see “ Toadflax Control ” (section 8.2.4), or “ Preharvest Treatment ” (Section 9.9).
Alfalfa	Early bud to full bloom stage	2.47 – 3.33	50 - 300	Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see section 8.2.6.
	Fall applications only			

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Dandelion	< 15 cm	1.67	50 – 100	<p>Allow 3 or more days after treatment before tillage for all rates.</p> <p>Use the higher rate when infestations are heavy.</p> <p>Refer to “Dandelion” notes in section 8.2.5 for more information.</p> <p>Allow 7 or more days after treatment before tillage. For more information, see “Preharvest Treatment” (section 9.9).</p>
	> 15 cm	2.47 – 3.33	50 – 300	
	Rosette to full bloom (preharvest)	1.67	50 - 100	
Foxtail Barley	Seeding to heading	1.67 – 3.33	50 - 100	<p>Allow a minimum of 1 day after treatment before tillage or seeding.</p> <p>Use higher rates for larger, more established plants, heavy infestations or if plants are stressed.</p>
Other Perennials (see listing section 6.2)	Early heading or early bud stage	4.67 - 8	100 - 300	Allow 7 or more days after treatment before tillage.

*NOTE: For spot treatment, mix 80 millilitres of product in 5 litres of clean water per 100 m² (1.67 – 8 litres per hectare is approximately equivalent to 17 – 80 mL/100m², respectively).

8.2 SPECIAL NOTES FOR PERENNIAL WEED CONTROL

8.2.1 QUACKGRASS

For **season-long control on fall tilled ground**: Apply 1.67 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

8.2.2 SURFACTANT INFORMATION

The following is a list of approved surfactants for use with R/T 540 Liquid Herbicide for control of quackgrass:

Agral 90	Companion
Ag Surf	

Always refer to surfactant label for specific instructions regarding use of that product.

8.2.3 CANADA THISTLE

Control of Canada Thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. **Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.**

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

R/T 540 LIQUID HERBICIDE PLUS BANVEL II HERBICIDE TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summerfallow or in postharvest stubble, apply 1.13 litres per hectare R/T 540 Liquid Herbicide plus 1.25 litres per hectare Banvel II Herbicide in 100 – 200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90, Ag Surf or Companion.

For best results in summerfallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

8.2.4 TOADFLAX

Control of Toadflax in a Summerfallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 10th to July 21st.
2. **Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are minimum of 15 centimetres tall and at a lush green vegetative stage.**

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

8.2.5 DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

8.2.6 ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 1.67 to 3.33 litres per hectare R/T 540 Liquid Herbicide and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 1.67 to 3.33 litres per hectare R/T 540 Liquid Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14 day interval between application and planting is required.

Use the higher R/T 540 Liquid Herbicide rates when perennial grasses are prevalent.

8.2.6.1 REMOVAL OF ROUNDUP READY ALFALFA – TANK MIXES

*TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.

The addition of a tank-mix partner is required to remove a stand of Roundup Ready alfalfa. Herbicide applications should be made in the fall when the Roundup Ready Alfalfa is at the bud stage of growth. Tillage at 2-3 weeks following herbicide application can improve control and consistency under stressed conditions (drought, frost, cold temperatures).

Use the following products and rates to control Roundup Ready alfalfa plus annual and perennial weeds (See Sections 7.1 and 8.1).

- Mix with water to achieve a total applied volume of 100 L/ha.
- Apply to Roundup Ready alfalfa in the pre-bud to start of flowering stage.
 - Best control achieved when the majority of plants are in the bud stage of development

R/T 540 Liquid Herbicide at 1.67-3.34 L/ha <u>plus only one of the following Tank Mix Products:</u>
2,4-D* Herbicide at 1.52 L/ha or:
Banvel II Herbicide at 1.25 L/ha or:
Lontrel 360 Herbicide at 0.56-0.83 L/ha or:
2,4-D* Herbicide at 1.05 L/ha + Banvel II Herbicide at 1.25 L/ha or:
2,4-D* Herbicide at 1.05 L/ha + Lontrel 360 Herbicide at 0.42 L/ha or:
Curtail M Herbicide at 2.0 - 3.0 L/ha

*rate for a 564 g ae/L formulation of 2,4-D. Adjust rates for other formulations. Includes both amine and ester formulations.

8.2.7 ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to “Perennial Weed Control with R/T 540 Liquid Herbicide” (section 8.1).

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow-up tillage after application should be delayed 5 to 7 days for best results. See “**Weed Control**” tables (sections 7.1 and 8.1) for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

9.0 CROPLAND SITUATIONS

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 and 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR EXCEPT FOR PREHARVEST AERIAL APPLICATION (SECTION 9.9.2).

This product can be applied as a broadcast spray or spot treatment prior to planting all crops, postharvest to annual crops, preharvest in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, soybeans, dry beans and forages, and in summerfallow. It may also be applied as a broadcast spray in Roundup Ready® Corn 2, soybean, or canola varieties (sections 7.5, 7.6 and 7.7). It may be applied as a directed spray in orchards, vineyards, blueberries and strawberries, and using selective equipment in soy and dry beans, orchards, vineyards, cranberries and strawberries (refer to specific sections below for more information). **For specific instructions on weed control in the following cropping situations, always refer to “Annual and Perennial Weed Control” (sections 7.0 and 8.0) for more information.**

9.1 PRIOR TO PLANTING – ALL CROPS

This product may be applied prior to planting all crops for control of emerged weeds listed on this label. Ensure weeds are at the desired stage at the time of application. This product does not provide preemergent weed control and newly germinating weeds may be a problem in the crop. **APPLY BEFORE SEEDING OR TRANSPLANTING.**

9.1.1 PRIOR TO PLANTING – TANK MIXES* - SOYBEANS

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

WHERE TANK MIX PARTNER LABELS REFER TO ONLY THE OLDER (360 G/L) GLYPHOSATE PRODUCTS, EG ROUNDUP ORIGINAL OR ROUNDUP TRANSORB, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.

R/T 540 Liquid Herbicide plus Pursuit Herbicide

R/T 540 Liquid Herbicide plus Pursuit Herbicide can be applied prior to or after seeding, but before crop emergence. R/T 540 Liquid Herbicide will control emerged weeds listed on this label when applied as directed (refer to Annual and Perennial Weed control sections in the R/T 540 Liquid Herbicide product label). Pursuit Herbicide will control weeds germinating from seed.

ONLY SOYBEANS, WHITE BEANS, KIDNEY BEANS, PROCESSING PEAS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 100 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE

R/T 540 Liquid Herbicide plus metribuzin (Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide, or Lexone DF Herbicide Dispersible Granules)

For burndown and residual control of selected annual weeds taller than 4 cm in soybeans, apply R/T 540 Liquid Herbicide in tank mix with Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide or Lexone DF Herbicide as a preplant surface or pre-emergence application before crop emergence.

R/T 540 Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in soybeans. Apply R/T 540 Liquid Herbicide in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.15– 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

Perennial weeds such as quack grass may not be controlled with lower rates of R/T 540 Liquid Herbicide. Use higher rates of R/T 540 Liquid Herbicide if perennial weeds are

present.

R/T 540 Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus metribuzin (Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide, or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds in soybeans.

Apply as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence. Perennial weeds such as quack grass may not be controlled with lower rates of R/T 540 Liquid Herbicide.

R/T 540 Liquid Herbicide plus Broadstrike Dual Magnum Soybean Herbicide

Broadstrike Dual Magnum Soybean Herbicide at 1.56 L/ha may be tank mixed with R/T 540 Liquid Herbicide at 1.7 L/ha for control of existing annual weeds and certain perennial weeds including quack grass. This tank mix may be applied preplant surface or pre-emergence in minimum till or no-till conditions. When mixing, add the Broadstrike Dual Magnum Soybean Herbicide component first.

R/T 540 Liquid Herbicide plus linuron

For burndown and residual control of selected annual weeds apply R/T 540 Liquid Herbicide plus linuron after seeding but before crop emergence.

R/T 540 Liquid Herbicide plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with R/T 540 Liquid Herbicide. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

R/T 540 Liquid Herbicide plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems: Apply this tank mixture in a minimum of 200 L/ha of total volume.

9.1.2 PRIOR TO PLANTING – TANK MIXES* - CORN

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

WHERE TANK MIX PARTNER LABELS REFER TO ONLY TO OLDER (360 G/L) GLYPHOSATE PRODUCTS, EG ROUNDUP ORIGINAL OR ROUNDUP TRANSORB, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.

R/T 540 Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn. Apply R/T 540 Liquid Herbicide in tank mix with Dual Magnum or Dual II Magnum at 1.25 to 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of R/T 540 Liquid Herbicide. Use higher rates of R/T 540 Liquid Herbicide if perennial weeds are present.

R/T 540 Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus Aatrex Liquid 480 Herbicide

For burndown and residual control of selected annual weeds in corn. Apply R/T 540 Liquid Herbicide in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.25 – 1.75 L/ha plus Aatrex Liquid 480 Herbicide at 2.1 - 3.1 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of R/T 540 Liquid Herbicide. Use higher rates of R/T 540 Liquid Herbicide if perennial weeds are present.

R/T 540 Liquid Herbicide plus Primextra II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn apply R/T 540 Liquid Herbicide plus Primextra II Magnum preplant surface or pre-emergence application before crop emergence. This tank mixture requires the use of a surfactant, either Agral 90 or Ag-Surf. See mixing instructions for more information.

Perennial weeds such as quack grass may not be controlled with lower rates of R/T 540 Liquid Herbicide. Use higher rates of R/T 540 Liquid Herbicide if perennial weeds are present.

R/T 540 Liquid Herbicide plus Fieldstar Herbicide

For burndown and residual control of selected annual weeds apply R/T 540 Liquid Herbicide plus Fieldstar Herbicide as a preplant surface or pre-emergence application before crop emergence.

R/T 540 Liquid Herbicide plus Prowl 400 EC Herbicide

For burndown and residual control of selected annual weeds apply R/T 540 Liquid Herbicide plus Prowl 400 EC herbicide after seeding but before crop emergence.

R/T 540 Liquid Herbicide plus Linuron herbicide

For burndown and residual control of selected annual weeds apply R/T 540 Liquid Herbicide plus linuron herbicide after seeding but before crop emergence.

R/T 540 Liquid Herbicide plus Converge Pro Herbicide or Converge 75 WDG Herbicide

Surface Preplant:

CONVERGE 75 WDG Herbicide can be applied to the soil surface up to 14 days prior to planting. CONVERGE 75 WDG Herbicide must be tankmixed with atrazine when applied as a surface preplant application. When weed growth is present at the time of application, R/T 540 Liquid Herbicide can be added to the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine treatment for burndown control of these weeds. Do not incorporate.

Preemergence:

Converge Pro Herbicide or Converge 75 WDG Herbicide can also be applied after planting to just prior to crop emergence. Atrazine and/or R/T 540 Liquid Herbicide can be tank mixed with pre-emergent applications of Converge Pro Herbicide or Converge 75 WDG Herbicide .

Apply Converge Pro Herbicide at 165-220 mL per hectare, or Converge 75 WDG Herbicide at 105-140 g per hectare, tankmixed with R/T 540 Liquid Herbicide at 1.67.L per hectare for burndown control of emerged weeds in all tillage management systems and improved control of established dandelion in zero-tillage management systems. A three-way tankmix of Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine + R/T 540 Liquid Herbicide can be used to provide residual control of the weeds listed in the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine section.

R/T 540 Liquid Herbicide plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with R/T 540 Liquid Herbicide. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

R/T 540 Liquid Herbicide plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems:

Apply this tank mixture in a minimum of 200 L/ha of total volume.

Sencor and Axiom are registered trademarks of Bayer.

Lexone is a registered trademark of E.I. duPont de Nemours and Company.

Dual, Magnum and Primextra are registered trademarks of Syngenta group company.

Broadstrike and Fieldstar are trademarks of Dow Agrosiences LLC.

9.1.3 PRIOR TO PLANTING – TANK MIXES* - CANOLA

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

Roundup R/T 540 Liquid Herbicide plus bromoxynil for preseed/preplant control of annual, perennial weeds and volunteer canola:

Apply Roundup R/T 540 Liquid Herbicide in a tank mix with bromoxynil. This tank-mix will control volunteer canola (all types) in addition to control of emerged weeds listed on this label when applied as directed (refer to Annual Weed Control Section 7.0 and Perennial Weed control Sections 8.0 prior to the planting of canola (all types).

For control of volunteer canola apply bromoxynil at a rate of 350 g/ha (e.g., 1.25 L/ha for herbicides containing 280 g/L bromoxynil, 1.5 L/ha for herbicides containing 235 g/L bromoxynil etc.) tank mixed with Roundup R/T 540 Liquid Herbicide at 0.83 -1.27 L/ha (annual weeds) or 1.67-3.33 L/ha (perennial weeds) prior to the planting of canola.

9.2 POSTHARVEST STUBBLE TREATMENT

This product may be applied in the fall as a postharvest stubble treatment for control of perennial weeds such as quackgrass and Canada thistle. Allow weeds to regrow to the desired stage (20 to 25 centimetres tall for quackgrass and Canada thistle) before application and ensure they have a high proportion of green colouration. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frosts prior to application may decrease control.

9.3 SPOT TREATMENT (IN-CROP)

This product can be applied as an in-crop spot treatment in barley, corn, oats, soybeans, wheat, strawberry, blueberry, forage grasses and legumes including seed production. Applications should be made using the same rates and at the same growth stages as listed in the “**Weed Control**” tables (sections 7.1 and 8.1) or use a 0.67 percent solution for annual weeds and quackgrass and a 1.34 percent solution for other perennial weeds (a 0.67 percent solution equals 0.67 litres of R/T 540 Liquid Herbicide in 100 litres of spray solution). 0.67 and 1.34 percent solutions should be applied to wet, but not run-off. Applications can be made using a boom sprayer, hose and handgun, or hand sprayer in accordance with instructions in “**Application Equipment**” (section 5.2).

9.3.1 GRAZING RESTRICTIONS

Applications can be made up to heading of small grains, initial pod set on soy and dry beans, silking of corn and emergence of seed heads. The crop in the treated area will be killed. Take care to avoid drift for the same reason. **DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS FOR R/T 540 LIQUID HERBICIDE TO TRANSLOCATE INTO ALL PLANT PARTS BEFORE GRAZING OR HARVESTING TREATED AREAS IN FORAGES.**

9.4 SUMMERFALLOW TREATMENT

This product, or labeled tank mixtures, may be applied in summerfallow to control weeds listed on this label. Ensure weeds are at the desired growth stage and actively growing at application for best results. Reduced control may result if weeds are drought stressed. Weeds will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds.

9.5 MINIMUM AND ZERO TILLAGE CROPPING SYSTEMS (ALL FIELD CROPS, INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES, CORN AND POTATOES)

This product may be applied prior to seeding or after seeding, but before crop emergence for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Applications made too far in advance of seeding may allow weeds to emerge between application and crop emergence, as this product does not provide residual weed control.

Minimum and Zero Tillage Tank Mixtures

9.5.1 R/T 540 Liquid Herbicide plus 2,4-D amine or ester can be applied prior to seeding or after seeding, but before crop emergence in **wheat, winter wheat, barley and rye**. Refer to “**Annual Weed Control with R/T 540 Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.2 R/T 540 Liquid Herbicide plus bromoxynil (Pardner) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley and oats. Refer to “**Annual Weed Control with R/T 540 Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.3 R/T 540 Liquid Herbicide plus Pursuit Herbicide can be applied prior to, or after seeding, but before crop emergence in soybeans. R/T 540 Liquid Herbicide will control emerged weeds listed on this label when applied as directed (refer to “**Annual and Perennial Weed Control**” section 7.0 and 8.0). Pursuit Herbicide will control weeds germinating from seed. Add the recommended rates of both products in 100 litres of water per hectare, following the instructions on the Pursuit herbicide label.

ALWAYS REFER TO THE PURSUIT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS. ONLY SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT HERBICIDE APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 120 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE.

Pursuit is a registered trademark of BASF Agrochemical Products B.V. Netherlands.

9.5.4 R/T 540 Liquid Herbicide plus MCPA can be applied prior to seeding in wheat, barley, rye, oats, corn (field and sweet; MCPA amine only), flax and field peas (MCPA amine only). Refer to “**Annual Weed Control with R/T 540 Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.5 R/T 540 Liquid Herbicide plus Buctril M® can be applied prior to seeding in **wheat, rye, corn, barley, oats, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow bromegrass, seedling streambank wheatgrass and reed canary grass**. Refer to “**Annual Weed Control with R/T 540 Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.6 R/T 540 Liquid Herbicide plus MCPA amine can be applied prior to seeding in **lentil and chickpea**. Refer to “**Annual Weed Control with R/T 540 Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.7 R/T 540 Liquid Herbicide plus Express Toss-N-Go Herbicide Or Express Toss-N-Go® Dry Flowable 75% Herbicide in pre-seed situations, **wheat and barley** may be seeded after a minimum of 24 hours after application. Refer to “**Annual Weed Control with R/T 540 Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

ALWAYS REFER TO THE EXPRESS® TOSS-N-GO HERBICIDE OR EXPRESS TOSS-N-GO DRY FLOWABLE 75% HERBICIDE LABEL FOR FURTHER INFORMATION ON APPLICATION DIRECTIONS, TANK MIXING, AND USE PRECAUTIONS.

9.5.8 R/T 540 Liquid Herbicide plus Banvel II Herbicide can be applied prior to seeding in **wheat, barley, rye, oats and field corn only (do not apply prior to seeding sweet corn)**. Refer to “**Annual Weed Control with R/T 540 Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.6 FORAGES LEGUMES AND GRASSES

This product may be applied for control of emerged weeds prior to emergence of forage legumes and grasses. If the forages are to be under-seeded with a cover crop, this product must be applied prior to planting the cover crop.

9.7 PASTURE RENOVATION

Use this product to control or suppress existing vegetation for zero-tillage seeding of legumes into established sod for pasture renovation. Delay spraying until weed growth is at least 20 centimetres in height and a maximum number of seedlings or shoots have emerged. Application can be made immediately before, during or after seeding, but before crop emergence.

9.8 FORAGE SEED PRODUCTION

For spot treatment control of perennial weed problems such as quackgrass and Canada thistle in seed fields, apply as directed to vegetation that is at least 20 to 25 centimetres in height but before emergence of seed head. The crop in the treated areas will be killed. Take care to avoid drift outside target areas for the same reason.

9.9 PREHARVEST TREATMENT

CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX AND DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle, R/T 540 Liquid Herbicide can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed) (including Roundup Ready® varieties), flax (including low linolenic acid varieties), lentils, peas, dry beans, soybeans (including Roundup Ready® varieties) and forages. DO NOT apply to crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations. EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE. Preharvest treatment to Roundup Ready® varieties of canola and soybean provides weed control only.

R/T 540 Liquid Herbicide should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For forage crops, apply this product at 1.67 to 3.33 litres per hectare 3 to 7 days prior to the last cut before rotation or forage renovation. Consult the table “**Guidelines for Timing of Preharvest Applications**” (section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results, quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 to 14 days (or 3 to 7 days for forage applications) before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g., sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife, should be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

DO NOT APPLY BY AIR.

9.9.1 GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including Roundup Ready® varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low linolenic acid varieties)	Less than 30	Majority (75% - 80%) of bolls are brown.
PEAS	Less than 30	Majority (75% - 80%) of pods are

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
		brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80% - 90% leaf drop (original leaves).
SOYBEANS (including Roundup Ready varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80% - 90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS: (PREHARVEST TREATMENT OF CHICKPEA, DRIED LUPIN AND DRIED FAVA BEAN).

The DIRECTIONS FOR USE for this product described below were developed by persons other than Monsanto Canada and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Monsanto Canada itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop listed below.

Accordingly, User assumes all risks related to performance and crop tolerance arising, and agree to hold Monsanto Canada harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

DIRECTIONS FOR USE

Preharvest Treatment of Chickpea, Dried Lupin and Dried Fava Bean

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle and harvest management, R/T 540 Liquid Herbicide can be applied prior to harvest of chickpea, dried lupin and dried fava bean. DO NOT apply to crops if grown for seed production.

R/T 540 Liquid Herbicide should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For further information see guidelines above. The Pre-harvest interval is 7 days.

GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
Chickpea	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves)
Dried Lupin		
Dried Fava Bean		

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS

9.9.2 PREHARVEST AERIAL APPLICATION

Refer to the general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific instructions in this section.

**RESTRICTED USE
AERIAL PREHARVEST APPLICATION
PRAIRIE PROVINCES ONLY
(including PEACE RIVER REGION OF B.C.)**

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators and aerial application services approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patterning) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 – 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.

3. Applicators using this product must have successfully completed a ROUNDUP herbicide aerial application training course provided by Monsanto Canada ULC
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the *direct daily supervision* of a qualified pilot.

Refer to general directions and precautions concerning aerial application, section 5.2, and 5.3, buffer zones.

DIRECTIONS FOR USE

R/T 540 Liquid Herbicide may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. R/T 540 Liquid Herbicide can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, dry beans and soybeans. **Do not use on forages. DO NOT apply to any crops if grown for seed production.**

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

R/T 540 Liquid Herbicide should be applied at 1.67 L/ha in 20 – 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% of less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table “**Guidelines for Timing of Preharvest Applications**” (Section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 – 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

9.10 TREE PLANTINGS

SHELTERBELTS AND NURSERY STOCK (WOODY ORNAMENTALS)

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established nurseries or shelterbelts of the following species:

DECIDUOUS

Ash

Fraxinus spp.

Caragana

Caragana spp.

Cherry

Prunus spp.

Elm

Ulmus spp.

Lilac

Syringa spp.

Maple

Acer spp.

Mountain Ash

Sorbus spp.

Poplar

Populus spp.

Russian Olive

Elaeagnus spp.

Willow

Salix spp.

CONIFEROUS

Fir

Abies spp.

Juniper

Juniperus spp.

Pine

Pinus spp.

Spruce

Picea spp.

Yew

Taxus spp.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

9.11 TREE, VINE, BERRY AND OTHER CROPS

This product is recommended for annual and perennial weed control in established vineyards or orchards, in blueberry, cranberry and strawberry, or for site preparation prior to transplanting tree and vine crops. Applications may be made with boom equipment, shielded sprayers, hand held and high volume orchard guns, or with wiper applicator equipment (orchards, vineyards, cranberry and strawberry only). See “**Mixing and Application Equipment Information**” (section 5.2) and the following table for specific information on the use of equipment.

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual or pre-emergent weed control. For subsequent weed control, follow a program using residual herbicides or use repeated applications of this product. Do not apply more than 23 litres of this product per hectare per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES, OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

WEED CONTROL IN TREE, VINE, BERRY AND OTHER CROPS

CROP	RATE (L/ha)	PRE-HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Apples, Apricot, Cherry (sweet/sour), Peaches, Pears, Plums	1.5 - 8	30	3	Annual and perennial weeds	
Apples, Grapes	Tank Mix 1.5 – 8 + Simazine 2.0 – 4.5 kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long preemergent control. Do not apply to coarse, sandy or gravelly soil. Use according to the more restrictive label direction for each product in the mix. DO NOT apply to orchards or vineyards that have been established less than 1 or 3 years, respectively. Simazine rate is equivalent to 2.25 – 5.0 kg/ha Princep® Nine-T®, or 4.0 – 9.0 kg/ha Simadex®
Grapes	1.5 - 8	14	3	Annual and perennial weeds.	Remove all sucker growth from the spray

CROP	RATE (L/ha)	PRE-HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
					<p>zone before spraying, except for the Concord variety of grape.</p> <p>Suckering should be conducted within 2 weeks prior to application.</p> <p>Do not apply to vines which have been established less than 3 years.</p>
Highbush (cultivated) blueberry	1.87 – 3.73	30	1	quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	0.67 – 1.34% solution (spot application)	Apply in non-bearing year only	1	Woody brush (section 6.3)	<p>Apply as a directed spray in mid-summer of the vegetative (non-bearing) year.</p> <p>See section 9.3 for instructions on spot treatments.</p>
Filberts, Hazelnut (established plantations)	1.5 – 2.33	14	-	Annual Weeds	Use as a directed spray, with no more than 275 kPa pressure.
Walnut, Chestnut, Japanese Heartnut	1.5 - 8	-	2	Annual and perennial weeds	<p>Apply late spring and fall, postharvest but prior to a killing frost.</p> <p>Apply in 200 – 300 L water as a directed spray, using no more than 275 kPa pressure.</p> <p>Apply alternatively as a 1.34% wiper solution (see “Wiper Applications” section 9.12).</p>
Cranberry	13.4% solution (0.62 L R/T 540)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators (section 9.12).

CROP	RATE (L/ha)	PRE-HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
	Liquid Herbicide + 4L water)				
Strawberry	0.67 – 1.34% solution (spot application) 22% solution (wiper application)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage (see sections 8.1 and 8.2). See section 9.3 for instructions on spot treatments. See section 9.12 for instructions on wiper applications.
Sugar Beets	0.67 – 1.34% solution (spot application)	Treated crop MUST NOT be harvested	1	Dodder species	Apply when dodder is vigorously growing but before flowering. See section 9.3 for instructions on spot treatments.
Asparagus	0.83 – 1.67	7	1	Fall seeded ryegrass	Apply in spring before emergence of crop shoots.

Princep and Nine-T are registered trademarks of Syngenta Crop Protection Canada Ltd.
Simadex is a registered trademark of Aventis CropScience UK Limited.

SHORT ROTATION INTENSIVE CULTURE (SRIC) POPLAR (*Populus spp*)

DO NOT APPLY BY AIR.

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established crops of short rotation intensive culture (SRIC) Poplar species (*Populus spp.*)

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, OR OTHER PARTS OF TREES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

R/T 540 Liquid Herbicide may be applied prior to planting or as a post directed spray in established short rotation intensive culture crops. Apply R/T 540 Liquid Herbicide up to 8 L/ha in 50 – 100 liters or 150 – 300 L/h for quackgrass control by ground application only. Applications can be made 1-3 times per year during establishment however, not to exceed the limit of 8 L/ha per year. Shielded sprayers must be utilized when applying post directed spray solutions. Allow a 6-8 week interval between spray applications. Apply to actively growing weeds.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS: (NORTH AMERICAN GINSENG).

The DIRECTIONS FOR USE for this product described on the label were developed by persons other than Monsanto Canada and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Monsanto Canada itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop listed on this label.

Accordingly, User assumes all liability arising, and agrees to hold Monsanto Canada harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described on this label.

DIRECTIONS FOR USE

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS.

NORTH AMERICAN GINSENG

New Gardens (British Columbia only): Apply this product in the fall after seeding but before freeze-up in new gardens only to control volunteer cereals. Apply when weeds are at the growth stages listed on the product label. Use a single application of 1.67 litres per hectare in 50 to 100 litres water per hectare. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

Existing/Established Gardens: Apply this product in the spring before the crop has emerged above the soil. Apply when weeds are at the growth stages described in the product label. A maximum of two 1.67 litres per hectare applications in 50 to 100 litres water per hectare may be made in a season. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

9.12 SELECTIVE EQUIPMENT

WIPER APPLICATORS

This product may be applied with a wiper applicator, after dilution and thorough mixing with water, to listed weeds in soy and dry beans, grapes, orchards, cranberries, lowbush blueberries and strawberries. Applications must be made before initial pod set in soy and dry beans. (It may also be used in any industrial, tree planting and non-crop site specified on this label. See sections 9.10 and 10.1).

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution. Wiper applicators include either roller or wick devices which physically wipe appropriate concentrations or amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Performance may be improved by reducing speed in areas of heavy weed infestations to insure adequate wiper saturation. Best results may be obtained if 2 applications are made in opposite directions.

AVOID CONTACT WITH DESIRABLE VEGETATION. Contact of the herbicide solution with desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that wiper contact point is at least 5 centimetres above the desirable vegetation. Droplets or foam of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications should be made when the weeds are a minimum of 15 centimetres above the desirable vegetation. Best results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. See the “**Weed Control**” tables (sections 7.1 and 8.1) for recommended stage of growth for specific weeds.

NOTES

- **Maintain equipment in good operating condition. Avoid leakage or dripping onto desirable vegetation.**
- **Adjust height of applicator to insure proper contact with weeds.**
- **Keep wiping surfaces clean.**
- **Maintain recommended roller RPM on roller applicators while in use.**
- **Keep wiper material at proper degree of saturation with herbicide solution.**
- **DO NOT use wiper equipment when weeds are wet.**

- **DO NOT operate equipment at ground speeds below 4 and greater than 10 kilometres per hour. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to insure good coverage of weeds.**
- **Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.**
- **Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended herbicide solution directly to the weed.**
- **Care must be taken with all types of wipers to insure that the absorbent material does not become over-saturated, causing the herbicide to drip onto desirable vegetation.**
- **With all equipment, drain and clean wiper parts immediately after using this product, by thoroughly flushing with water.**

For Roller Applicators – Mix 0.33 to 0.67 litres of this product in 10 litres water to prepare a 3 to 7 percent solution. Roller speed should be maintained at 50 to 150 RPM.

For Wick or other Wiper Applicators – Mix 0.57 litres of this product in 2 litres of water to prepare a 22 percent solution.

10.0 NON-CROPLAND USES

INDUSTRIAL, RIGHTS-OF-WAY, RECREATIONAL, AND PUBLIC AREAS.

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR.

This product can be used to control annual and perennial weeds and woody brush and trees listed on this label in non-crop areas such as railroad, pipeline, highway, power and telephone rights-of-way, petroleum tank farms and pumping installations; roadsides; storage areas; lumberyards; fence rows; industrial plant sites; parking areas; school yards, parks, golf courses, other public areas; airports and similar industrial or non-crop areas.

NOTE: For all industrial, rights-of-way, recreational and public areas, repeat treatments may be necessary to control regeneration or new growth.

When applied as recommended under the conditions described, this product will control weeds in non-cropland areas as listed in the following table.

10.1 WEED CONTROL IN NON-CROPLAND AREAS WITH R/T 540 LIQUID HERBICIDE

WEEDS	GROUND APPLICATION*			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
Annual grasses and broadleaves	1.5–2.33	50-100	0.67	Actively growing weeds.
Perennial Weeds				Actively growing weeds.
Quackgrass	1.67 3.17-4.67	50-300 50-300	0.67 1.34	Add 0.5% v/v of a recommended surfactant when using water volumes greater than 150 L (see section 8.2.2). Higher rate for long term control and for heavy infestations. See section 10.2.2 for instructions on purple loosestrife applications. Summer through fall is optimum.
Canada Thistle (bud stage)	3.17-4.67	100-300	1.34	
Purple Loosestrife	4	300-600	0.67-1.34 (or 22% for wiper application)	
Other Perennials	4.67-8	100-300	1.34	
Brush and Trees				
Birch, Cherry, Poplar, Western Snowberry, Willow	2-4	100-300	0.67-1.34	Summer through early fall (see section 10.2).
Maple, Raspberry/ Salmonberry, Alder	4	100-300	1.34	Late summer through fall. Fall is optimum.
Turf Renovation				
Annual and perennial weeds	1.67-8	100-300	0.67-1.34	Use higher end of the rate range for perennials.
Roadside Vegetation (1-2m wide along shoulders) Annual weeds (refer to tank mix sections on product labels for specific weeds controlled)	1) 0.5 – 0.67 + 1.25 – 2.5 L Vanquish or 2) 0.5 – 0.67 + 0.30 L Vanquish + 1.2 L 2,4-D amine 500	25-150	-	Refer to “ Annual Weed Control ” table (section 7.1) for appropriate product rate for specific weeds. For 2,4-D amine formulations with a different guarantee, adjust the rate accordingly.

WEEDS	GROUND APPLICATION*			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
				No application to standing water.
Residual Control Annual and perennial weeds (the simazine component of this tank mixture will provide season long control of most germinating broadleaf weeds and grasses. It may also provide postemergent activity on certain annual weeds).	1.67 – 8 + 4.0 -9.0 L Simadex Simazine Flowable	200-400	-	Do not apply to coarse, sandy or gravelly soil. One application per year. Use according to the most restrictive label directions for each product in the mixture. For other simazine formulations registered for industrial/ non-cropland areas, use equivalent rates; i.e., 2.0 – 4.5 kg simazine/ha.

* For more information on rates, water volumes and application, refer to “**Annual and Perennial Weed Control**” (sections 7.1 and 8.1, respectively).

Vanquish is a registered trademark of Syngenta group company.
 Simadex is a registered trademark of Bayer.

10.2 APPLICATION INFORMATION FOR NON-CROPLAND USES

FOLIAR APPLICATIONS

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30 to 45 days for symptoms to develop on target species. Late season application may be made to species that have some autumn colors provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURF GRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

This product does not provide residual weed control. For subsequent weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

10.2.1 GROUND APPLICATIONS: For all non-cropland uses

For woody brush and trees, apply 2 to 4 litres of this product per hectare. Use ground boom or boomless, or mist blower equipment, or apply as a 0.67 to 1.34 percent solution using hand held, high volume equipment. Apply as directed in the recommended volume of clean water to foliage of actively growing vegetation. Use the 4 litres per hectare rate for Maple, Alder and Willow* species, as well as for hard to control perennial weed species. (*suppression only).

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages.

10.2.2 PURPLE LOOSESTRIFE CONTROL

- DO NOT TREAT PLANTS OVER OPEN WATER. R/T 540 Liquid Herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using hand held equipment, spray-to-wet.
- For wiper applications see section 9.12.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

10.3 SELECTIVE APPLICATION FOR ALL NON-CROPLAND USES

Selective equipment such as WIPER and ROLLER applicators can be used to control emerged weeds in non-crop areas and tree plantings. See “**Selective Equipment**” (section 9.12) for more information.

10.4 TURF GRASS

When applied as directed, under conditions described, this product controls most existing vegetation. Apply this product at rates specified in “**Weed Control in Non-Cropland Areas**” (section 10.1).

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth given in “**Weed Control**” (sections 7.1 and 8.1, respectively). Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray and proper translocation into underground plant parts. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

For maximum control of existing vegetation, delay establishment to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. Desirable turfgrass may be established following the above procedures.

10.5 INJECTION APPLICATIONS -- FOR ALL NON-CROPLAND USES

Woody vegetation may be controlled by injection application of this product. Apply using suitable equipment, which must penetrate into living tissue, at a rate of at least 0.33 millilitres (either undiluted or 1:1 with water) per 5 centimetres tree diameter at breast height (DBH). The cuts should be spaced evenly around the tree and below all major branches. Application may be made at any time of year, except when cold temperatures prevent adequate penetration of injection equipment, or in the spring during periods of heavy sap flow. Control of tree species with tree diameters greater than 20 centimetres may not be acceptable at this rate.

Total control may not be evident for 1 to 2 years following treatment.

A partial list of species controlled includes:

Alder

Alnus spp.

Birch

Betula spp.

Cedar

Thuja spp.

Cherry

Prunus spp.

Douglas Fir

Pseudotsuga spp.

Hemlock

Tsuga spp.

Maple*

Acer spp.

Pine

Pinus spp.

Poplar

Populus spp.

Willow

Salix spp.

* This treatment may only provide suppression of Bigleaf Maple. Late fall applications will provide optimum suppression of Bigleaf Maple.

10.6 CUT STUMP APPLICATION

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Because the treatment uses a concentrated solution, application must be made using low-pressure equipment e.g., squirt bottle or similar device. This product must be applied immediately to the surface of the freshly cut stump i.e., within 5 minutes for optimum control at the prescribed rates. Only the cambial tissues of the cut surface should be treated. Apply the herbicide solution at a rate equivalent to at least 0.33 millilitres product for every 5 centimetres DBH. Do not cover the remaining area nor any exposed roots, as this product does not penetrate bark well. This treatment may be used at any time of year, except during periods of heavy sap flow or when low temperatures prevent solution application due to freezing. A water soluble colourant may be added to the solution as a means of indicating which surfaces have been treated. Total control may not be evident until 1 to 2 years after treatment.

See “**Injection Applications**” (section 10.5) of this label for a partial list of species controlled.

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MONSANTO COMPANY
Material Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name

Roundup Original® Herbicide

EPA Reg. No.

524-445

Product use

Herbicide

Chemical name

Not applicable.

Synonyms

None.

Company

MONSANTO COMPANY, 800 N. Lindbergh Blvd., St. Louis, MO, 63167

Telephone: 800-332-3111, **Fax:** 314-694-5557

Emergency numbers

FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, EXPOSURE, OR ACCIDENT Call CHEMTREC - Day or Night: 1-800-424-9300 toll free in the continental U.S., Puerto Rico, Canada, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted).

FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

2. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

Isopropylamine salt of N-(phosphonomethyl)glycine; {Isopropylamine salt of glyphosate }

Composition

COMPONENT	CAS No.	% by weight (approximate)
Isopropylamine salt of glyphosate	38641-94-0	41
Other ingredients		59

The specific chemical identity is being withheld because it is trade secret information of Monsanto Company.

OSHA Status

This product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

Emergency overview

Appearance and odour (colour/form/odour): Yellow - Amber / Liquid / Slight

WARNING!

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY

HARMFUL IF SWALLOWED

HARMFUL IF INHALED

Potential health effects

Likely routes of exposure

Skin contact, eye contact

Eye contact, short term

May cause temporary eye irritation.

Skin contact, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Inhalation, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Refer to section 11 for toxicological and section 12 for environmental information.

4. FIRST AID MEASURES

Eye contact

Immediately flush with plenty of water.

Continue for at least 15 minutes.

If easy to do, remove contact lenses.

If there are persistent symptoms, obtain medical advice.

Skin contact

Wash affected skin with plenty of water.

Wash clothes and clean shoes before re-use.

Take off contaminated clothing, wristwatch, jewellery.

Inhalation

Remove to fresh air.

Ingestion

Immediately offer water to drink.

Do NOT induce vomiting unless directed by medical personnel.

If symptoms occur, get medical attention.

Advice to doctors

This product is not an inhibitor of cholinesterase.

Antidote

Treatment with atropine and oximes is not indicated.

5. FIRE-FIGHTING MEASURES

Flash point

Does not flash.

Extinguishing media

Recommended: Water, dry chemical, carbon dioxide (CO₂), foam

Unusual fire and explosion hazards

None.

Environmental precautions: see section 6.

Hazardous products of combustion

Carbon monoxide (CO), nitrogen oxides (NO_x), phosphorus oxides (P_xO_y)

Fire fighting equipment

Self-contained breathing apparatus.

Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protection recommended in section 8.

Environmental precautions

SMALL QUANTITIES:

Low environmental hazard.

LARGE QUANTITIES:

Minimise spread.

Keep out of drains, sewers, ditches and water ways.

Methods for cleaning up

SMALL QUANTITIES:

Flush spill area with water.

LARGE QUANTITIES:

Absorb in earth, sand or absorbent material.

Dig up heavily contaminated soil.

Collect in containers for disposal.

Refer to section 7 for types of containers.

Flush residues with small quantities of water.

Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

Handling

Avoid contact with skin and eyes.

When using do not eat, drink or smoke.

Wash hands thoroughly after handling or contact.

Thoroughly clean equipment after use.

Emptied containers retain vapour and product residue.

Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.

Storage

Minimum storage temperature: 10 °F

Compatible materials for storage: stainless steel, aluminium, plastic, fibreglass, glass lining

Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep only in the original container.

Partial crystallization may occur on prolonged storage below the minimum storage temperature.

If frozen, place in warm room and shake frequently to put back into solution.

Minimum shelf life: 5 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Other ingredients	No specific occupational exposure limit has been established.

Engineering controls

Have eye wash facilities immediately available at locations where eye contact can occur.

Eye protection

If there is potential for contact:
Wear chemical goggles.

Skin protection

If repeated or prolonged contact:
Wear chemical resistant gloves.

Respiratory protection

No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Colour/colour range:	Yellow - Amber
Form:	Liquid
Odour:	Slight
Flash point:	Does not flash.
Specific gravity:	1.1655 @ 20 °C / 15.6 °C
Vapour pressure:	22 mmHg 22 °C
pH:	4.4 - 5.0
Partition coefficient (log Pow):	< 0.000 (active ingredient)

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions of handling and storage.

Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

Materials to avoid/Reactivity

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

Hazardous polymerization

Does not occur.

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Data obtained on product and components are summarized below.

Acute oral toxicity

Rat, LD50 (limit test): > 5,000 mg/kg body weight

Other effects: breathing difficulty, decreased activity, soft stools

Practically non-toxic.

FIFRA category IV.

No mortality.

Acute dermal toxicity

Rat, LD50 (limit test): > 5,000 mg/kg body weight

Target organs/systems: none

Other effects: none

Practically non-toxic.

FIFRA category IV.

No mortality.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: 2.6 mg/L

Target organs/systems: none

Other effects: breathing difficulty, decreased activity, local effects

Practically non-toxic.

FIFRA category IV.

Skin irritation

Rabbit, 6 animals, OECD 404 test:

Days to heal: 1

Primary Irritation Index (PII): 0.4/8.0

Other effects: none

Essentially non irritating.

FIFRA category IV.

Eye irritation

Rabbit, 6 animals, OECD 405 test:

Days to heal: 10

Moderate irritation.

FIFRA category II.

Skin sensitization

Guinea pig, Buehler test:

Positive incidence: 0 %

EXPERIENCE WITH HUMAN EXPOSURE

Ingestion, short term, case report(s):

Gastro-intestinal effects: irritation, nausea/vomiting, diarrhoea

Ingestion, short term, :

Respiratory effects: increased fluid in lungs (lung/pulmonary oedema)

Cardiovascular effects: decreased blood pressure (hypotension)

N-(phosphonomethyl)glycine; {glyphosate}

Mutagenicity

In vitro and in vivo mutagenicity test(s):

Not mutagenic.

Repeated dose toxicity

Rabbit, dermal, 21 days:

NOAEL toxicity: > 5,000 mg/kg body weight/day

Target organs/systems: none

Other effects: none

Rat, oral, 3 months:

NOAEL toxicity: > 20,000 mg/kg diet

Target organs/systems: none

Other effects: none

Chronic effects/carcinogenicity

Mouse, oral, 24 months:

NOEL tumour: > 30,000 mg/kg diet

NOAEL toxicity: ~ 5,000 mg/kg diet

Tumours: none

Target organs/systems: liver
Other effects: decrease of body weight gain, histopathologic effects

Rat, oral, 24 months:

NOEL tumour: > 20,000 mg/kg diet
NOAEL toxicity: ~ 8,000 mg/kg diet

Tumours: none

Target organs/systems: eyes

Other effects: decrease of body weight gain, histopathologic effects

Toxicity to reproduction/fertility

Rat, oral, 2 generations:

NOAEL toxicity: 10,000 mg/kg diet

NOAEL reproduction: > 30,000 mg/kg diet

Target organs/systems in parents: none

Other effects in parents: decrease of body weight gain

Target organs/systems in pups: none

Other effects in pups: decrease of body weight gain

Effects on offspring only observed with maternal toxicity.

Developmental toxicity/teratogenicity

Rat, oral, 6 - 19 days of gestation:

NOAEL toxicity: 1,000 mg/kg body weight

NOAEL development: 1,000 mg/kg body weight

Other effects in mother animal: decrease of body weight gain, decrease of survival

Developmental effects: weight loss, post-implantation loss, delayed ossification

Effects on offspring only observed with maternal toxicity.

Rabbit, oral, 6 - 27 days of gestation:

NOAEL toxicity: 175 mg/kg body weight

NOAEL development: 175 mg/kg body weight

Target organs/systems in mother animal: none

Other effects in mother animal: decrease of survival

Developmental effects: none

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on similar products are summarized below.

Similar formulation

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, flowthrough, LC50: 5.8 mg/L

Moderately toxic.

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, flowthrough, LC50: 8.2 mg/L

Moderately toxic.

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 11 mg/L

Slightly toxic.

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 96 hours, static, EC50: 2.6 mg/L

Moderately toxic.

Duckweed (*Lemna minor*):

Acute toxicity, 7 days, static, EC50 (frond number): 6 mg/L

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Arthropod toxicity

Honey bee (*Apis mellifera*):

Oral/contact, 48 hours, LD50: > 326 µg/bee
Practically non-toxic.

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: > 5,000 mg/kg dry soil
Practically non-toxic.

N-(phosphonomethyl)glycine: {glyphosate}

Bioaccumulation

Bluegill sunfish (*Lepomis macrochirus*):

Whole fish: BCF: < 1
No significant bioaccumulation is expected.

Dissipation

Soil, field:

Half life: 2 - 174 days
Koc: 884 - 60,000 L/kg
Adsorbs strongly to soil.

Water, aerobic:

Half life: < 7 days

13. DISPOSAL CONSIDERATIONS

Product

Dispose of as hazardous industrial waste.
Recycle if appropriate facilities/equipment available.
Burn in special, controlled high temperature incinerator.
Keep out of drains, sewers, ditches and water ways.
Follow all local/regional/national/international regulations.

Container

Triple or pressure rinse empty containers.
Pour rinse water into spray tank.
Store for collection by approved waste disposal service.
Dispose of as hazardous industrial waste.
Do NOT re-use containers.
Follow all local/regional/national/international regulations.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

Not hazardous under the applicable DOT, ICAO/IATA, IMO, TDG and Mexican regulations.

15. REGULATORY INFORMATION

TSCA Inventory

All components are on the US EPA's TSCA Inventory

OSHA Hazardous Components

Surfactant(s)

SARA Title III Rules

Section 311/312 Hazard Categories

Immediate

Section 302 Extremely Hazardous Substances

Not applicable.

Section 313 Toxic Chemical(s)

Not applicable.

CERCLA Reportable quantity

Not applicable.

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

For more information refer to product label.

Please consult Monsanto if further information is needed.

In this document the British spelling was applied.

All trademarks herein are trademarks of Monsanto Company or its subsidiaries.

	Health	Flammability	Instability	Additional Markings
NFPA	2	1	1	

0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, MONSANTO Company or any of its subsidiaries makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will MONSANTO Company or any of its subsidiaries be responsible for damages of any nature whatsoever resulting from the use of or reliance

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Dow AgroSciences

Grazon™ XC

Herbicide

GROUP	4	HERBICIDE
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- Contains Picloram and 2,4-D

For sale for use to control trees, deep-rooted perennial and biennial broadleaf weeds on rangeland and permanent pastures, and other non-cropland areas in Western Canada only.

COMMERCIAL

READ THE LABEL AND BOOKLET BEFORE USING

ACTIVE INGREDIENT: Picloram, present as triisopropanolamine salt 97.5 g/L
2,4-D, present as choline salt 360 g a.e./L
Solution

REGISTRATION NO. 31642 PEST CONTROL PRODUCTS ACT

WARNING- EYE IRRITANT

NET CONTENTS: 1 L - bulk

Dow AgroSciences Canada Inc.

2400, 215 – 2nd Street S.W.

Calgary, Alberta

T2P 1M4

1-800-667-3852

®™Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

PRECAUTIONS
CAUSES EYE IRRITATION
HARMFUL IF SWALLOWED
DO NOT GET IN EYES
AVOID CONTACT WITH EYES, SKIN AND CLOTHING
KEEP OUT OF REACH OF CHILDREN

PROTECTIVE CLOTHING AND EQUIPMENT

Do not apply this product in a way that this product will contact workers or other persons, either directly or through drift. Only handlers (mixers, loaders and applicators) wearing personal protective equipment may be in the area being treated during application. See **DIRECTIONS FOR USE** for crop specific REIs.

Ground and Aerial

When handling more than 736 L per day, workers must use a closed system

- When mixing/loading, wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks, shoes and **goggles or face shield**. Rinse gloves before removal.
- When applying or during clean-up and repair, wear coveralls over a long sleeved shirt, long pants, chemical resistant gloves, socks and shoes. Rinse gloves before removal.
- Gloves are not required during application when the applicator is in an enclosed tractor or in an enclosed airplane cockpit.

Application using Aerial Equipment

- Applicators must wear coveralls over a long-sleeved shirt and long pants. Chemical-resistant gloves must also be worn during clean-up and repair activities.
- No human flaggers are permitted.

Application using Groundboom Equipment

- Applicators must wear coveralls over a long-sleeved shirt and long pants. Chemical-resistant gloves must also be worn during clean-up and repair activities.

Application using Handheld Equipment (Backpack sprayers, manually pressurized handwands, mechanically-pressurized handguns and rights-of-way sprayers)

- Applicators must wear coveralls over a long-sleeved shirt, long pants and chemical-resistant gloves.
- Mixers/loaders/applicators using mechanically pressurized handguns must wear a respirator if they will be handling more than 5 kg ae/day (13.9 L/day/person).
- Do not handle more than 8 kg ae/day (22.2 L/day/person).

MIXING

Mechanical Transfer System

10 L containers: Manufacturers are required to incorporate a built-in plastic spout on the containers, to minimize spillage and exposure.

110 L Containers and greater: Use a transfer system that avoids open pouring when transferring the liquid concentrate from such containers into the spray tank.

OPERATOR USE PRECAUTIONS

- Wear freshly laundered clothing and clean protective equipment daily.
- Rinse gloves before removal.
- Wash hands before eating, drinking, using tobacco or using the toilet.
- If herbicide penetrates clothing remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.

- After using this product, remove clothing and launder separately and promptly and thoroughly wash hands and exposed skin with soap and water. Follow manufacturer's instructions for cleaning personal protective clothing and equipment. If no such instructions for washables are provided, use detergent and hot water. Keep and wash personal protective equipment separate from household laundry.
- After work, remove all clothing and shower using soap and water.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Keep away from heat and open flame.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient. 2,4-D may cause severe irritation to the eyes. Overexposure to 2,4-D may cause coughing, burning, dizziness or temporary loss of muscle coordination. Other possible effects of overexposure include fatigue, muscle weakness or nausea. Treat symptomatically.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

- Picloram is persistent and will carryover. It is recommended that any products containing picloram not be used in areas treated with this product during the previous season.
- TOXIC to small mammals, birds, aquatic organisms and non-target terrestrial plants.
- Observe buffer zones specified under DIRECTIONS FOR USE.
- This product will harm other broadleaved plants in the vicinity of the treatment area. If applying this product using a handheld sprayer, do not directly spray or allow the spray to drift onto ornamentals or gardens.
- Do not spray exposed roots of trees and ornamentals.

LEACHING

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

RUNOFF

- To reduce runoff from treated areas into aquatic habitats avoid application to areas with moderate to steep slope, compacted soil, or clay.
- Avoid application of this product when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a strip of untreated vegetation between the treated area and the edge of the water body.

STORAGE

Do not store Grazon XC Herbicide near food, feedstuffs, fertilizers, seeds, insecticides, fungicides or other pesticides or herbicides intended to be used on picloram sensitive crops. Store in heated storage. If frozen, bring to room temperature and agitate vigorously before mixing with water.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

DIRECTIONS FOR USE

Use Grazon XC Herbicide to control deep-rooted perennial and biennial broadleaf weeds on rangeland, permanent grass pastures and other non-cropland areas in Western Canada. **Read all precaution statements before using this product.** For more information or help, contact your local Dow AgroSciences representative.

GENERAL USE PRECAUTIONS

Certain environmental conditions may increase the potential for herbicides to move in water, through the soil and enter an underlying aquifer[†]. These environmental conditions include:

- Soils that are very permeable (textures of sandy loam to sand) throughout the entire profile and which also have an underlying shallow aquifer.
- Soils containing sinkholes over limestone bedrock.
- Surfaces composed of severely fractured rock or unconsolidated gravels and underlain with an aquifer.

The above conditions may permit direct movement of herbicides, including those containing picloram, to underlying aquifers.

To help identify areas of concern, a Dow AgroSciences representative can be contacted for additional information and assistance towards doing site inspections.

†An aquifer is "an underground, saturated, permeable, geologic formation capable of producing significant quantities of water to a well or spring. It is the ability of the saturated zone, or portion of that zone, to yield water which makes it an aquifer" (American Chemical Society, 1983).

Field sprayer application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotorspan.

- Do not apply more than once per year.
- DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, irrigation ditches and wetlands), estuaries or marine habitats.
- DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Restricted Entry Interval (REI)

- Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours following application on agricultural areas. For non-crop areas, do not enter or allow worker entry into treated areas until sprays have dried.

Apply only when the potential for drift to areas of human habitation or areas of human activity (houses, cottages, schools and recreational areas) is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Sensitive Plants

Herbicidal effects of Grazon XC Herbicide occur primarily from uptake by plant foliage and translocation throughout the plant, however, secondary herbicidal action may occur from soil uptake of picloram. Very small amounts can kill or damage sensitive broadleaf plants. Care should be taken to avoid spraying desirable broadleaved plants during both growing and dormant periods. Grazon XC Herbicide should not be applied to the foliage of target vegetation near areas planted to crops such as legumes (peas, lentils, alfalfa, clover), beans, soybeans, canola, potatoes, tobacco, grapes, tomatoes, flowers, ornamental shrubs and trees or other desirable broadleaved crops. Do not apply Grazon XC Herbicide within the area occupied by roots of desirable trees unless injury can be tolerated. When applying Grazon XC Herbicide leave a buffer zone from the base of the trunk of at least 1.5 times the height of desirable trees, plants or shrubs.

In addition, care should be taken to avoid contaminating soil in which sensitive crops will be grown. Hay cut from vegetation which has been treated with Grazon XC Herbicide should not be used for composting or mulching, nor should the manure from animals ingesting treated grass or hay be used around susceptible plants, because picloram residues pass through the animal unchanged and are still herbicidally active. Contact Dow AgroSciences Canada Inc. for additional information on sensitive broadleaf plant species.

On areas treated with this product, do not rotate to crops intended for food or feed use, other than range or pasture grasses, wheat, barley or oats not underseeded with a legume, **do not move treated soil, or use treated soil for growing other plants** until soil residues of picloram are no longer detectable as indicated by an adequately sensitive bioassay or chemical test.

Do not spray pastures if the injury to existing forage legumes cannot be tolerated. Grazon XC Herbicide may injure or kill legume plants. Forage legumes may be less sensitive to the herbicide after the seed has set and plant growth is mature.

Established grasses are tolerant to this product, but newly seeded grasses may be injured until well established as indicated by tillering, development of a secondary root system and vigorous growth.

Do not transfer livestock from treated grazing areas onto broadleaf crop areas without first allowing 7 days of grazing on untreated grass pasture. Otherwise, urine may contain enough picloram to cause injury to sensitive broadleaf plants.

Do not mix with dry fertilizer.

Do not use on sub-irrigated land.

PREHARVEST/GRAZING INTERVALS

- Do not allow lactating dairy animals to graze the treated areas within 7 days after application.
- Do not harvest grass for hay within 30 days after application.
- Withdraw meat animals from treated fields at least 3 days before slaughter.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or www.dowagro.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

DIRECTIONS FOR USE

Application Rates for Grazon XC Herbicide

Weed Species Controlled	Rate per Hectare (litres)
Canada thistle, dandelion, common yarrow	2.47 L
In addition to the above weeds: sweet and red clover, wild carrot, common ragweed, goldenrod, dock, plantain, prickly lettuce, burdock, fleabane, vetch, leafy spurge*, toadflax*	4.67 L
<u>Tree and Woody Species Controlled</u> Aspen Birch Willow Wild prairie rose	6.2 L
<u>Tree and Woody Species Suppressed</u> Balsam poplar Western Snowberry	

*For control of leafy spurge and toadflax under less than optimum growing conditions, use a recommended surfactant (such as Intake Adjuvant or any non-ion surfactant) at the rate of 0.25% by volume (e.g., 250 mL per 100 L of water). If maximum rainfastness is desired increase the rate to 0.375% (375 mL per 100 L of water). The recommended surfactant should be added after the herbicide is thoroughly mixed. Agitate to thoroughly mix the water, surfactant and Grazon XC Herbicide. Apply soon after mixing. Do not prolong application for longer than 24 hours after mixing. See surfactant label for a full list of recommended rates. Some surfactants require rates ranging from 0.2 to 1%.

BROADCAST GROUND APPLICATION

Broadleaved Weed Control: Apply 2.47 to 4.67 L/ha of Grazon XC Herbicide in 100 - 200 L/ha of total spray volume. For better coverage use 200 L/ha. Maximum 1 application per year. Use enough water to wet weeds without run-off. Apply in spring or early summer when fully developed green leaves are present. Use higher rates in areas with dense weed populations or for a more extended control. For best results in terms of foliage response, desirable forage grasses should be present in the area to be treated in sufficient density to provide competition to lessen weed re-establishment following treatment. Additionally, good grazing management practices are recommended, particularly in the year following treatment, to allow forage grass density to increase.

Deciduous Tree and Woody Species Control (Broadcast Foliage Application)

Apply up to 6.2 L/ha of Grazon XC Herbicide in 100-200 L /ha water to control deciduous tree and woody species. For better coverage, use 200 L/ha.

Apply to trees or woody plants after the foliage is fully developed. Maximum 1 application per year. Apply when plants are actively growing to achieve the maximum control. Application may not give satisfactory results when the foliage has lost its normal green colour and vigour, and leaves have formed a waxy cuticle.

For faster burndown of coniferous species use a recommended surfactant (such as Intake Adjuvant or any non-ionic surfactant) at the rate of 0.25% by volume (250 mL per 100 L of water). If maximum rainfastness is desired increase the rate to 0.375% (375 mL per 100 L of water). The recommended surfactant should be added after the herbicide is thoroughly mixed. Agitate to thoroughly mix the water, surfactant and Grazon XC Herbicide. Apply soon after mixing. Do not prolong application for longer than 24 hours after mixing. See surfactant label for a full list of recommended rates. Some surfactants require rates ranging from 0.2 to 1%.

Spray drift could cause injury to trees and other desirable broadleaved plants outside the desired treatment area and may render soil unproductive for sensitive broadleaved plants. Stay back a minimum 1.5 times the height of desirable trees to prevent unwanted root uptake.

With ground broadcast methods of application, use the pressures recommended by the nozzle manufacturer to minimize production of fines, and choose nozzle tips that produce coarse droplets (VMD >400 microns, $V_{0.1}$ >210 microns, and $V_{0.6.2}$ <850 microns). The use of nozzles designed to minimize drift is recommended, such as an air induction or venturi nozzle.

NOTE: Legumes are susceptible to Grazon XC Herbicide. Do not spray pastures containing forage legumes unless the loss of such legumes can be tolerated.

BROADCAST AERIAL APPLICATION

Broadleaved Weed and Deciduous Tree and Woody Species Control

For broadleaved weed control, apply 2.47 L to 6.2 L of Grazon XC Herbicide per hectare in a minimum spray volume of 20 L/ha by air. For deciduous tree and woody species control, apply up to 6.2 L of Grazon XC Herbicide per hectare in a minimum spray volume of 20 L/ha by air. For better coverage of dense foliage, use 50 L/ha.

Apply to trees or woody plants after the foliage is fully developed. Maximum 1 application per year. Apply when plants are actively growing to achieve the maximum control. Application may not give satisfactory results when the foliage has lost its normal green colour and vigour, and leaves have formed a waxy cuticle.

Broadcast Aerial Application Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. **Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.**

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

- **Buffer Zones:** Appropriate buffer zones should be established between treatment areas and aquatic systems and treatment areas and significant wildlife habitat.
- Use the lower end of recommended spray pressure recommended by the nozzle manufacturer. Avoid placing nozzles where spray will enter wing tip vortices.
- Aerial application should be made as close to the ground as possible while maintaining adequate coverage.
- Do not apply this product directly to, or otherwise permit it to come into direct contact with desirable crops or other desirable broadleaved plants or non-target species and do not permit spray mists to drift onto them.
- Spray drift could cause injury to trees and other desirable broadleaved plants outside the desired treatment area and may render soil unproductive for sensitive broadleaved plants.
- To prevent contamination of adjacent surface water including lakes, ponds and streams, strict adherence to provincial setbacks from water is essential.

Controlling Droplet Size

Volume: Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

Pressure: Use the pressures recommended by the nozzle manufacturer to minimize production of fines, and choose nozzle tips that produce coarse droplets. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

Number of Nozzles: Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation: Orienting nozzles so that the spray is released parallel to the airstream produced larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. Increase spray volume by choosing a nozzle with a larger orifice.

Nozzle Type: Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Coarse sprays are less likely to drift, use only nozzles or nozzle configuration which minimize the production of fine spray drops. Choose a nozzle that provides a coarse sized droplet, and consistency in droplet size (VMD >350 microns, $V_{0.1}$ >210 microns, and $V_{0.6,2}$ <700 microns). Flat Fan or CP nozzles are recommended for aerial application. When spraying, avoid combination of pressure and nozzle type that will result in fine particles (mist) which are more likely to drift.

Boom Length: For some use patterns, reducing the effective boom length to less than 65% of the wingspan or rotor length may further reduce drift without reducing swath width.

Do not use human flaggers.

Wind: Drift potential is lowest at low wind speeds. Many factors, including droplet size and equipment type determine drift potential at any given speed. Caution should be exercised when winds are below 2 kph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Applicators should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

Determine Air Movement and Direction Before Making Foliar Applications: Do not spray when wind is blowing toward susceptible crops or ornamental plants near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movements, lapse conditions, or temperature inversions (stable air). If the smoke layers or otherwise indicates a potential for hazardous spray drift, do not spray.

Sprayer Clean-Out Instructions

To avoid injury to desirable plants, thoroughly clean equipment used to apply this product before re-use or using it to apply other chemicals.

1. Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. First rinse:
 - Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
 - Agitate and circulate for 15 minutes, and flush through booms and hoses.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.
3. Second rinse:
 - Fill the tank with clean water.
 - Add All Clear Spray Tank Decontaminator, or Clean-Out Spray Tank Cleaner, or 1 L of household ammonia (containing a minimum of 3 % ammonia) per 100 L of water, or similar tank cleaning agent as per manufacturer's recommendations while filling the tank with clean water.
 - Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation. Flush the solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - If possible, let the solution stand in the sprayer tank and booms for an extended period of time, overnight if possible.
 - After flushing the boom and hoses, drain tank completely.
 - Remove nozzles and screens and clean separately with a cleaning agent or an ammonia solution (100 mL in 10 L water).

4. Third rinse:

- Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
- Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
- Drain tank completely.

Do not use ammonia with chlorine bleach. Using ammonia with chlorine bleach will release a gas with a musty odour which may cause eye, nose, throat and lung irritation. Do not clean equipment in an enclosed area.

BUFFER ZONES TO PROTECT SENSITIVE HABITATS

Seasonal water bodies require buffer zones if there is water in them during application. Water bodies which do not fill on an annual basis need not be buffered.

For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies that minimize off-site drift, including meteorological conditions (e.g. wind direction, low wind speed) and spray equipment (e.g. coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), and estuarine/marine habitats.

For Coarse Spray (ASAE)

Method of Application	Target/Rate (L/ha)		Aquatic habitat of depth:		Terrestrial habitat
			< 1 m	> 1 m	
Field sprayer	Rangelands, permanent grass pastures, non-cropland including rights-of-way (6.2 L/ha)		2	1	70*
	Aerial	Rangelands and permanent grass pastures (6.2 L/ha)	Fixed-wing	65	20
Rotary-wing			40	15	300
Non-cropland including rights-of-way (6.2 L/ha)		Fixed-wing	225	125	800*
		Rotary-wing	95	50	700*

*Buffer zones for the protection of terrestrial habitats are not required for use on right-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

For Very Coarse Spray (ASAE)

Method of Application	Target/Rate (L/ha)		Aquatic habitat of depth:		Terrestrial habitat
			< 1 m	> 1 m	
Aerial	Rangelands and permanent grass pastures (6.2 L/ha)	Fixed-wing	50	15	425
		Rotary-wing	30	15	275
	Non-cropland including rights-of-way (6.2 L/ha)	Fixed-wing	150	75	800*
		Rotary-wing	60	35	600*

*Buffer zones for the protection of terrestrial habitats are not required for use on right-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

For Very Coarse – Extremely Coarse Spray (ASAE)

Method of Application	Target/Rate (L/ha)		Aquatic habitat of depth:		Terrestrial habitat
			< 1 m	> 1 m	
Aerial	Rangelands and permanent grass pastures, (6.2 L/ha)	Fixed-wing	25	15	325
		Rotary-wing	20	10	225
	Non-cropland including rights-of-way (6.2 L/ha)	Fixed-wing	125	65	800*
		Rotary-wing	50	35	500*

*Buffer zones for the protection of terrestrial habitats are not required for use on right-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

NOTE: Applicators may recalculate a site-specific buffer zone by combining information on current weather conditions and spray configuration for the following applications: all airblast applications, and for field and aerial applications which specify the following droplet size category wording on the product label: DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Grazon XC Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Grazon XC Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Grazon XC Herbicide or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.

- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor treated weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.dowagro.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

022818

Label Code: CN-31642-003-E

Replaces: CN-31642-002-E

Specimen Label Notes

Delete 3 day REI for established grass pastures, rangeland, perennial grassland in agricultural production as it does not apply to 2,4-D Choline products

Product name: Grazon™ Herbicide**Issue Date: 22.06.2016**

DOW AGROSCIENCES (NZ) LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Grazon™ Herbicide
Identified uses: End use herbicide product

COMPANY IDENTIFICATION
DOW AGROSCIENCES (NZ) LIMITED
89 PARITUTU ROAD
4342 NEW PLYMOUTH
NEW ZEALAND

Customer Information Number: 0800-803-939
fnpcust@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: +64 6 751 2407
Local Emergency Contact: 0800 844 455

For medical advice, contact the New Zealand Poisons Information Centre:
0800 POISON (0800 764 766)
Transport Emergency Only Dial: 111

This SDS may not provide exhaustive guidance for all the HSNO controls assigned to this substance. The NZ EPA website www.epa.govt.nz should be consulted for a full list of triggered controls and cited regulations

2. HAZARDS IDENTIFICATION

Hazard classification
NEW ZEALAND HAZARDOUS SUBSTANCES CLASSIFICATION: Classified as hazardous according to criteria in the New Zealand Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001. Refer to section 15 for HSNO Approval number.

HSNO classifications: 6.1D, 6.3B, 6.4A, 6.5B, 6.9B, 9.1A, 9.2A, 9.3C

Hazards

Harmful if swallowed or inhaled.
Causes mild skin irritation.
May cause an allergic skin reaction
Causes eye irritation.
May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life with long lasting effects.
Very toxic to the soil environment.
Harmful to terrestrial vertebrates

Prevention

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing / eye and face protection.
Contaminated work clothing should not be allowed out of the workplace.
Avoid release to the environment.

Response

IF exposed or if you feel unwell: Call a POISON CENTER or doctor/ physician.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell.
Rinse mouth.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/ attention.
Specific treatment (see supplemental first aid instructions on this SDS).
Wash contaminated clothing before re-use.
Collect spillage

Storage

Store locked up.

Disposal

Dispose of contents/ container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CASRN	Concentration
Triclopyr butoxyethyl ester	64700-56-7	71.7%
Diethylene glycol monoethyl ether	11-90-0	~ 20 %
Balance	Not available	~ 10%

4. FIRST AID MEASURES

Consult the National Poisons Information Centre (0800 POISON (0800 764 766)) or a doctor in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention immediately.

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before re-use. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15 – 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control centre or doctor for treatment advice.

Ingestion: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Hazchem Code: 2X

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Sulfur oxides. Nitrogen oxides. Hydrogen fluoride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may vent and/or rupture due to fire. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Intact containers exposed to excessive heat should be cooled with water to reduce drum pressure.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain

fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7: Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8: Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12: Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13: Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapour or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

This substance is subject to a requirement for an emergency management plan, secondary containment and signage, whenever it is held in quantities of 100 L or more, either alone or in aggregate with other hazardous substances. See Hazardous Substances Emergency Management and Identification Regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist:

Component	Regulation	Type of listing	Value/Notation
Triclopyr-2-butoxyethyl ester	Dow IHG	TWA	2 mg/m ³ SKIN, DSEN, BEI
Diethylene glycol monoethyl ether	US WEEL	TWA	25 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations

Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

Hand protection: Use chemical resistant gloves classified under standard AS/NZS 2161.10: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to AS/NZS 2161.10) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to AS/NZS 2161.10) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/ specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face-shield, boots, apron, or full-body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Other Information: Selection and use of personal protective equipment should be in accordance with the recommendations in one or more of the relevant Australian/New Zealand Standards, including:

AS/NZS 1336: Eye and Face protection - Guidelines.

AS/NZS 1337: Personal eye protection - Eye and face protectors for occupational applications.

AS/NZS 1715: Selection, use and maintenance of respiratory protective equipment.

AS/NZS 2161: Occupational protective gloves.

AS/NZS 2210: Occupational protective footwear.

AS/NZS 4501: Occupational protective clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance - Physical state	Liquid.
- Color	Brown
Odour	Odourless.
Odour Threshold	No data available
pH	6.7 <i>pH electrode</i>
Melting point/range	Not applicable to liquids
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point - closed cup	95 ⁰ c
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No product data available. Triclopyr BEE = 3.6 x 10 ⁻⁶ mm Hg at 25 ⁰ c
Relative Vapor Density (air = 1)	1.2
Relative Density (water = 1)	No data available
Water solubility	Emulsifiable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Liquid density	1.2 g/cm ³ at 20 °c
Molecular weight	Triclopyr BEE = 356.7

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available.

Chemical stability: Unstable at elevated temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: Avoid contact with: Strong oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen fluoride. Nitrogen oxides. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product: LD50, Rat, male > 2,000 mg/kg. No deaths occurred at this concentration.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: LD50, Rabbit, female > 2,000 mg/kg. No deaths occurred at this concentration.

Acute inhalation toxicity

Prolonged exposure is not expected to cause adverse effects. Based on the available data, respiratory irritation was not observed.

As product: The LC50 has not been determined.

For the active ingredient: Triclopyr BEE: Prolonged exposure is not expected to cause adverse effects. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.

LC50, Rat, 4 Hour, dust/mist > 4.8 mg/l The LC50 value is greater than the Maximum Attainable Concentration.

For diethylene glycol monoethyl ether: No adverse effects are anticipated from single exposure to vapor. Based on the available data, respiratory irritation was not observed. Based on the available data, narcotic effects were not observed.

LC0, Rat, 8 Hour, vapour, 0.025 mg/l. No deaths occurred following exposure to a saturated atmosphere.

Skin corrosion/irritation

Prolonged contact may cause skin irritation with local redness.

Serious eye damage/eye irritation

May cause slight eye irritation. Corneal injury is unlikely.

Sensitization

Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization: No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient: In animals, effects have been reported on the following organs:

Blood. Kidney. Liver.

Carcinogenicity

For the active ingredient: Triclopyr. Did not cause cancer in laboratory animals.

For the solvents: Did not cause cancer in laboratory animals.

Teratogenicity

For the active ingredient(s). Has been toxic to the foetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For the solvents: Did not cause birth defects or any other foetal effects in laboratory animals.

Reproductive toxicity

For similar active ingredient(s). Triclopyr. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

For the solvents: Studies in laboratory animals indicate that diethylene glycol monoethyl ether (DEGEE) is not a reproductive toxicant even when given in large amounts (a few percent in the drinking water). However, at the highest doses, it caused some toxic effects in offspring of treated animals: increased liver weight, decreased brain weight, reduced sperm motility. .

Mutagenicity

For the active ingredient: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

For the solvent: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity**Triclopyr-2-butoxyethyl ester****Acute toxicity to fish**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, *Lepomis macrochirus* (Bluegill sunfish), flow-through test, 96 Hour, 0.36 mg/l

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), 48 Hour, 2.9 mg/l, OECD Test Guideline 202. The EC50 value is above the water solubility.

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), 96 Hour, Growth rate inhibition > 3.00 mg/l. OECD Test Guideline 201

ErC50, *Myriophyllum spicatum*, 14 d, 0.0473 mg/l

NOEC, *Myriophyllum spicatum*, 14 d, 0.00722 mg/l

Chronic toxicity to fish

NOEC, *Oncorhynchus mykiss* (Rainbow trout), 0.0263 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (Water flea), 21 d, number of offspring, 1.6 mg/l

LOEC, *Daphnia magna* (Water flea), 21 d, number of offspring, 5.1 mg/l

MATC (Maximum Acceptable Toxicant Level), *Daphnia magna* (Water flea), 21 d, number of offspring, 2.9 mg/l.

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2,000 mg/kg).

Material is slightly toxic to birds on a dietary basis (LC50 between 1,001 and 5,000 ppm).

oral LD50, *Colinus virginianus* (Bobwhite quail), 21 d, 735 mg/kg bodyweight.
dietary LC50, *Colinus virginianus* (Bobwhite quail), 8 d, 1,890 mg/kg bodyweight.

oral LD50, *Apis mellifera* (bees), 48 Hour, mortality > 110 µg/bee
contact LD50, *Apis mellifera* (bees), 48 Hour, mortality > 100 µg/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d > 521 mg/kg

Diethylene glycol monoethyl ether**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, *Ictalurus catus* (catfish), flow-through test, 96 Hour, 6,010 mg/l. OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, *Daphnia magna* (Water flea), static test, 48 Hour, 1,982 mg/l. OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

Based on information for a similar material: ErC50, *Desmodesmus subspicatus* (green algae), static test, 96 Hour, Growth rate inhibition > 100 mg/l. OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC10, Bacteria, 16 Hour, 4,000 mg/l

Balance**Acute toxicity to fish**

No relevant data found.

Persistence and degradability**Triclopyr-2-butoxyethyl ester**

Biodegradability: Chemical degradation (hydrolysis) is expected in the environment. Triclopyr BEE is hydrolysed to triclopyr acid in soil and water. Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

Biodegradation: 18 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 1.39 mg/mg

Biological oxygen demand (BOD): 0.004 mg/mg

Stability in Water (1/2-life): Hydrolysis, half-life, 8.7 d, pH 7, Half-life Temperature 25 °C

Photodegradation: Atmospheric half-life: 5.6 Hour. *Estimated.*

Diethylene glycol monoethyl ether

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Reaches > 70% mineralization in OECD test(s) for inherent biodegradability.

10-day Window: Pass

Biodegradation: 90 %

Exposure time: 28 d

Method: OECD Test Guideline 301E or Equivalent

10-day Window: Not applicable
Biodegradation: > 90 %
Exposure time: 5.5 d
Method: OECD Test Guideline 302B or Equivalent

Theoretical Oxygen Demand: 1.91 mg/mg
Chemical Oxygen Demand: 1.84 mg/mg
Biological oxygen demand (BOD): 5d = 5 – 17%; 10d = 31 - 71%; 20d = 49 – 87%
Photodegradation: Atmospheric half-life (indirect photolysis; OH radicals): 4.093 Hour. *Estimated*

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Triclopyr-2-butoxyethyl ester

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3,000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water (log Pow): 4.62

Bioconcentration factor (BCF): 110 Fish

Diethylene glycol monoethyl ether

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water (log Pow): -0.54 Measured

Balance

Bioaccumulation: No relevant data found.

Mobility in Soil

Triclopyr-2-butoxyethyl ester

Calculation of meaningful sorption data was not possible due to very rapid degradation in the soil. For the degradation product: Triclopyr. Potential for mobility in soil is very high (Koc between 0 and 50).

Diethylene glycol monoethyl ether

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 20 Estimated.

Balance

No relevant data found.

Results of PBT and vPvB assessment

Triclopyr-2-butoxyethyl ester

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

Diethylene glycol monoethyl ether

This substance is not considered to be persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB).

Balance

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

Waste handling, treatment and disposal practices must be in compliance with the New Zealand Hazardous Substances (Disposal) Regulations 2001. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Regulations concerning waste management may vary in different locations.

This product when disposed of in its unused and uncontaminated state should be treated as a hazardous waste.

14. TRANSPORT INFORMATION

PUBLIC PASSENGER VEHICLE TRANSPORT: To be transported ONLY in the sealed original container. Maximum volume permitted to be transported in a passenger service vehicle: 1 Litre.

Classification for ROAD and Rail transport:

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Triclopyr butoxyethyl ester)
UN number	UN 3082
Class	9
Packing group	III
Environmental hazards	Triclopyr butoxyethyl ester

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Triclopyr butoxyethyl ester)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Triclopyr butoxyethyl ester
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Triclopyr butoxyethyl ester)
UN number	UN 3082
Class	9
Packing group	III

Hazchem code: 2X

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Compliance with the above land, rail, marine and air requirements is deemed to comply with the applicable requirements of the Hazardous substances Identification and Emergency Management Regulations.

15. REGULATORY INFORMATION

ACVMG APPROVAL NUMBER: P003868
HSNO Approval Code: HSR000829

ADVICE TO PRODUCT USERS REGARDING HSNO CONTROLS: Users of this product should make reference to the New Zealand Hazardous Substances and New Organisms Act and Regulations for relevant risk management controls. Additional local requirements may be applicable in accordance with planning controls under the Resource Management Act. Refer to Environment Protection Authority publication; User Guide to the HSNO Controls Regulations. <http://www.epa.govt.nz>

16. OTHER INFORMATION

Revision

Identification Number: 101200350/ A157 / Issue Date: 22.06.2016 / Version: Replaces 13.07.2011
 DAS Code: IWD-3483
 Sections amended: 4, 8, 12

Legend

Dow IHG	Dow Industrial Hygiene Guidelines
TWA	Time Weighted Average
US WEEL	Workplace Environment Exposure Level

DOW AGROSCIENCES (NZ) LIMITED urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDS's, we are not and cannot be responsible for (M)SDS's obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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Dow AgroSciences

Grazon™ XC

Herbicide

GROUP	4	HERBICIDE
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- Contains Picloram and 2,4-D

For sale for use to control trees, deep-rooted perennial and biennial broadleaf weeds on rangeland and permanent pastures, and other non-cropland areas in Western Canada only.

COMMERCIAL

READ THE LABEL AND BOOKLET BEFORE USING

ACTIVE INGREDIENT: Picloram, present as triisopropanolamine salt 97.5 g/L
2,4-D, present as choline salt 360 g a.e./L
Solution

REGISTRATION NO. 31642 PEST CONTROL PRODUCTS ACT

WARNING- EYE IRRITANT

NET CONTENTS: 1 L - bulk

Dow AgroSciences Canada Inc.

2400, 215 – 2nd Street S.W.

Calgary, Alberta

T2P 1M4

1-800-667-3852

®™Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

PRECAUTIONS
CAUSES EYE IRRITATION
HARMFUL IF SWALLOWED
DO NOT GET IN EYES
AVOID CONTACT WITH EYES, SKIN AND CLOTHING
KEEP OUT OF REACH OF CHILDREN

PROTECTIVE CLOTHING AND EQUIPMENT

Do not apply this product in a way that this product will contact workers or other persons, either directly or through drift. Only handlers (mixers, loaders and applicators) wearing personal protective equipment may be in the area being treated during application. See **DIRECTIONS FOR USE** for crop specific REIs.

Ground and Aerial

When handling more than 736 L per day, workers must use a closed system

- When mixing/loading, wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks, shoes and **goggles or face shield**. Rinse gloves before removal.
- When applying or during clean-up and repair, wear coveralls over a long sleeved shirt, long pants, chemical resistant gloves, socks and shoes. Rinse gloves before removal.
- Gloves are not required during application when the applicator is in an enclosed tractor or in an enclosed airplane cockpit.

Application using Aerial Equipment

- Applicators must wear coveralls over a long-sleeved shirt and long pants. Chemical-resistant gloves must also be worn during clean-up and repair activities.
- No human flaggers are permitted.

Application using Groundboom Equipment

- Applicators must wear coveralls over a long-sleeved shirt and long pants. Chemical-resistant gloves must also be worn during clean-up and repair activities.

Application using Handheld Equipment (Backpack sprayers, manually pressurized handwands, mechanically-pressurized handguns and rights-of-way sprayers)

- Applicators must wear coveralls over a long-sleeved shirt, long pants and chemical-resistant gloves.
- Mixers/loaders/applicators using mechanically pressurized handguns must wear a respirator if they will be handling more than 5 kg ae/day (13.9 L/day/person).
- Do not handle more than 8 kg ae/day (22.2 L/day/person).

MIXING

Mechanical Transfer System

10 L containers: Manufacturers are required to incorporate a built-in plastic spout on the containers, to minimize spillage and exposure.

110 L Containers and greater: Use a transfer system that avoids open pouring when transferring the liquid concentrate from such containers into the spray tank.

OPERATOR USE PRECAUTIONS

- Wear freshly laundered clothing and clean protective equipment daily.
- Rinse gloves before removal.
- Wash hands before eating, drinking, using tobacco or using the toilet.
- If herbicide penetrates clothing remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.

- After using this product, remove clothing and launder separately and promptly and thoroughly wash hands and exposed skin with soap and water. Follow manufacturer's instructions for cleaning personal protective clothing and equipment. If no such instructions for washables are provided, use detergent and hot water. Keep and wash personal protective equipment separate from household laundry.
- After work, remove all clothing and shower using soap and water.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Keep away from heat and open flame.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient. 2,4-D may cause severe irritation to the eyes. Overexposure to 2,4-D may cause coughing, burning, dizziness or temporary loss of muscle coordination. Other possible effects of overexposure include fatigue, muscle weakness or nausea. Treat symptomatically.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

- Picloram is persistent and will carryover. It is recommended that any products containing picloram not be used in areas treated with this product during the previous season.
- TOXIC to small mammals, birds, aquatic organisms and non-target terrestrial plants.
- Observe buffer zones specified under DIRECTIONS FOR USE.
- This product will harm other broadleaved plants in the vicinity of the treatment area. If applying this product using a handheld sprayer, do not directly spray or allow the spray to drift onto ornamentals or gardens.
- Do not spray exposed roots of trees and ornamentals.

LEACHING

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

RUNOFF

- To reduce runoff from treated areas into aquatic habitats avoid application to areas with moderate to steep slope, compacted soil, or clay.
- Avoid application of this product when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a strip of untreated vegetation between the treated area and the edge of the water body.

STORAGE

Do not store Grazon XC Herbicide near food, feedstuffs, fertilizers, seeds, insecticides, fungicides or other pesticides or herbicides intended to be used on picloram sensitive crops. Store in heated storage. If frozen, bring to room temperature and agitate vigorously before mixing with water.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

DIRECTIONS FOR USE

Use Grazon XC Herbicide to control deep-rooted perennial and biennial broadleaf weeds on rangeland, permanent grass pastures and other non-cropland areas in Western Canada. **Read all precaution statements before using this product.** For more information or help, contact your local Dow AgroSciences representative.

GENERAL USE PRECAUTIONS

Certain environmental conditions may increase the potential for herbicides to move in water, through the soil and enter an underlying aquifer[†]. These environmental conditions include:

- Soils that are very permeable (textures of sandy loam to sand) throughout the entire profile and which also have an underlying shallow aquifer.
- Soils containing sinkholes over limestone bedrock.
- Surfaces composed of severely fractured rock or unconsolidated gravels and underlaid with an aquifer.

The above conditions may permit direct movement of herbicides, including those containing picloram, to underlying aquifers.

To help identify areas of concern, a Dow AgroSciences representative can be contacted for additional information and assistance towards doing site inspections.

†An aquifer is "an underground, saturated, permeable, geologic formation capable of producing significant quantities of water to a well or spring. It is the ability of the saturated zone, or portion of that zone, to yield water which makes it an aquifer" (American Chemical Society, 1983).

Field sprayer application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotorspan.

- Do not apply more than once per year.
- DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, irrigation ditches and wetlands), estuaries or marine habitats.
- DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Restricted Entry Interval (REI)

- Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours following application on agricultural areas. For non-crop areas, do not enter or allow worker entry into treated areas until sprays have dried.

Apply only when the potential for drift to areas of human habitation or areas of human activity (houses, cottages, schools and recreational areas) is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Sensitive Plants

Herbicidal effects of Grazon XC Herbicide occur primarily from uptake by plant foliage and translocation throughout the plant, however, secondary herbicidal action may occur from soil uptake of picloram. Very small amounts can kill or damage sensitive broadleaf plants. Care should be taken to avoid spraying desirable broadleaved plants during both growing and dormant periods. Grazon XC Herbicide should not be applied to the foliage of target vegetation near areas planted to crops such as legumes (peas, lentils, alfalfa, clover), beans, soybeans, canola, potatoes, tobacco, grapes, tomatoes, flowers, ornamental shrubs and trees or other desirable broadleaved crops. Do not apply Grazon XC Herbicide within the area occupied by roots of desirable trees unless injury can be tolerated. When applying Grazon XC Herbicide leave a buffer zone from the base of the trunk of at least 1.5 times the height of desirable trees, plants or shrubs.

In addition, care should be taken to avoid contaminating soil in which sensitive crops will be grown. Hay cut from vegetation which has been treated with Grazon XC Herbicide should not be used for composting or mulching, nor should the manure from animals ingesting treated grass or hay be used around susceptible plants, because picloram residues pass through the animal unchanged and are still herbicidally active. Contact Dow AgroSciences Canada Inc. for additional information on sensitive broadleaf plant species.

On areas treated with this product, do not rotate to crops intended for food or feed use, other than range or pasture grasses, wheat, barley or oats not underseeded with a legume, **do not move treated soil, or use treated soil for growing other plants** until soil residues of picloram are no longer detectable as indicated by an adequately sensitive bioassay or chemical test.

Do not spray pastures if the injury to existing forage legumes cannot be tolerated. Grazon XC Herbicide may injure or kill legume plants. Forage legumes may be less sensitive to the herbicide after the seed has set and plant growth is mature.

Established grasses are tolerant to this product, but newly seeded grasses may be injured until well established as indicated by tillering, development of a secondary root system and vigorous growth.

Do not transfer livestock from treated grazing areas onto broadleaf crop areas without first allowing 7 days of grazing on untreated grass pasture. Otherwise, urine may contain enough picloram to cause injury to sensitive broadleaf plants.

Do not mix with dry fertilizer.

Do not use on sub-irrigated land.

PREHARVEST/GRAZING INTERVALS

- Do not allow lactating dairy animals to graze the treated areas within 7 days after application.
- Do not harvest grass for hay within 30 days after application.
- Withdraw meat animals from treated fields at least 3 days before slaughter.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or www.dowagro.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

DIRECTIONS FOR USE

Application Rates for Grazon XC Herbicide

Weed Species Controlled	Rate per Hectare (litres)
Canada thistle, dandelion, common yarrow	2.47 L
In addition to the above weeds: sweet and red clover, wild carrot, common ragweed, goldenrod, dock, plantain, prickly lettuce, burdock, fleabane, vetch, leafy spurge*, toadflax*	4.67 L
<u>Tree and Woody Species Controlled</u> Aspen Birch Willow Wild prairie rose	6.2 L
<u>Tree and Woody Species Suppressed</u> Balsam poplar Western Snowberry	

*For control of leafy spurge and toadflax under less than optimum growing conditions, use a recommended surfactant (such as Intake Adjuvant or any non-ion surfactant) at the rate of 0.25% by volume (e.g., 250 mL per 100 L of water). If maximum rainfastness is desired increase the rate to 0.375% (375 mL per 100 L of water). The recommended surfactant should be added after the herbicide is thoroughly mixed. Agitate to thoroughly mix the water, surfactant and Grazon XC Herbicide. Apply soon after mixing. Do not prolong application for longer than 24 hours after mixing. See surfactant label for a full list of recommended rates. Some surfactants require rates ranging from 0.2 to 1%.

BROADCAST GROUND APPLICATION

Broadleaved Weed Control: Apply 2.47 to 4.67 L/ha of Grazon XC Herbicide in 100 - 200 L/ha of total spray volume. For better coverage use 200 L/ha. Maximum 1 application per year. Use enough water to wet weeds without run-off. Apply in spring or early summer when fully developed green leaves are present. Use higher rates in areas with dense weed populations or for a more extended control. For best results in terms of foliage response, desirable forage grasses should be present in the area to be treated in sufficient density to provide competition to lessen weed re-establishment following treatment. Additionally, good grazing management practices are recommended, particularly in the year following treatment, to allow forage grass density to increase.

Deciduous Tree and Woody Species Control (Broadcast Foliage Application)

Apply up to 6.2 L/ha of Grazon XC Herbicide in 100-200 L /ha water to control deciduous tree and woody species. For better coverage, use 200 L/ha.

Apply to trees or woody plants after the foliage is fully developed. Maximum 1 application per year. Apply when plants are actively growing to achieve the maximum control. Application may not give satisfactory results when the foliage has lost its normal green colour and vigour, and leaves have formed a waxy cuticle.

For faster burndown of coniferous species use a recommended surfactant (such as Intake Adjuvant or any non-ionic surfactant) at the rate of 0.25% by volume (250 mL per 100 L of water). If maximum rainfastness is desired increase the rate to 0.375% (375 mL per 100 L of water). The recommended surfactant should be added after the herbicide is thoroughly mixed. Agitate to thoroughly mix the water, surfactant and Grazon XC Herbicide. Apply soon after mixing. Do not prolong application for longer than 24 hours after mixing. See surfactant label for a full list of recommended rates. Some surfactants require rates ranging from 0.2 to 1%.

Spray drift could cause injury to trees and other desirable broadleaved plants outside the desired treatment area and may render soil unproductive for sensitive broadleaved plants. Stay back a minimum 1.5 times the height of desirable trees to prevent unwanted root uptake.

With ground broadcast methods of application, use the pressures recommended by the nozzle manufacturer to minimize production of fines, and choose nozzle tips that produce coarse droplets (VMD >400 microns, $V_{0.1}$ >210 microns, and $V_{0.6.2}$ <850 microns). The use of nozzles designed to minimize drift is recommended, such as an air induction or venturi nozzle.

NOTE: Legumes are susceptible to Grazon XC Herbicide. Do not spray pastures containing forage legumes unless the loss of such legumes can be tolerated.

BROADCAST AERIAL APPLICATION

Broadleaved Weed and Deciduous Tree and Woody Species Control

For broadleaved weed control, apply 2.47 L to 6.2 L of Grazon XC Herbicide per hectare in a minimum spray volume of 20 L/ha by air. For deciduous tree and woody species control, apply up to 6.2 L of Grazon XC Herbicide per hectare in a minimum spray volume of 20 L/ha by air. For better coverage of dense foliage, use 50 L/ha.

Apply to trees or woody plants after the foliage is fully developed. Maximum 1 application per year. Apply when plants are actively growing to achieve the maximum control. Application may not give satisfactory results when the foliage has lost its normal green colour and vigour, and leaves have formed a waxy cuticle.

Broadcast Aerial Application Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. **Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.**

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

- **Buffer Zones:** Appropriate buffer zones should be established between treatment areas and aquatic systems and treatment areas and significant wildlife habitat.
- Use the lower end of recommended spray pressure recommended by the nozzle manufacturer. Avoid placing nozzles where spray will enter wing tip vortices.
- Aerial application should be made as close to the ground as possible while maintaining adequate coverage.
- Do not apply this product directly to, or otherwise permit it to come into direct contact with desirable crops or other desirable broadleaved plants or non-target species and do not permit spray mists to drift onto them.
- Spray drift could cause injury to trees and other desirable broadleaved plants outside the desired treatment area and may render soil unproductive for sensitive broadleaved plants.
- To prevent contamination of adjacent surface water including lakes, ponds and streams, strict adherence to provincial setbacks from water is essential.

Controlling Droplet Size

Volume: Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

Pressure: Use the pressures recommended by the nozzle manufacturer to minimize production of fines, and choose nozzle tips that produce coarse droplets. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

Number of Nozzles: Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation: Orienting nozzles so that the spray is released parallel to the airstream produced larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. Increase spray volume by choosing a nozzle with a larger orifice.

Nozzle Type: Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Coarse sprays are less likely to drift, use only nozzles or nozzle configuration which minimize the production of fine spray drops. Choose a nozzle that provides a coarse sized droplet, and consistency in droplet size (VMD >350 microns, $V_{0.1}$ >210 microns, and $V_{0.6,2}$ <700 microns). Flat Fan or CP nozzles are recommended for aerial application. When spraying, avoid combination of pressure and nozzle type that will result in fine particles (mist) which are more likely to drift.

Boom Length: For some use patterns, reducing the effective boom length to less than 65% of the wingspan or rotor length may further reduce drift without reducing swath width.

Do not use human flaggers.

Wind: Drift potential is lowest at low wind speeds. Many factors, including droplet size and equipment type determine drift potential at any given speed. Caution should be exercised when winds are below 2 kph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Applicators should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

Determine Air Movement and Direction Before Making Foliar Applications: Do not spray when wind is blowing toward susceptible crops or ornamental plants near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movements, lapse conditions, or temperature inversions (stable air). If the smoke layers or otherwise indicates a potential for hazardous spray drift, do not spray.

Sprayer Clean-Out Instructions

To avoid injury to desirable plants, thoroughly clean equipment used to apply this product before re-use or using it to apply other chemicals.

1. Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. First rinse:
 - Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
 - Agitate and circulate for 15 minutes, and flush through booms and hoses.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.
3. Second rinse:
 - Fill the tank with clean water.
 - Add All Clear Spray Tank Decontaminator, or Clean-Out Spray Tank Cleaner, or 1 L of household ammonia (containing a minimum of 3 % ammonia) per 100 L of water, or similar tank cleaning agent as per manufacturer's recommendations while filling the tank with clean water.
 - Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation. Flush the solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - If possible, let the solution stand in the sprayer tank and booms for an extended period of time, overnight if possible.
 - After flushing the boom and hoses, drain tank completely.
 - Remove nozzles and screens and clean separately with a cleaning agent or an ammonia solution (100 mL in 10 L water).

4. Third rinse:

- Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
- Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
- Drain tank completely.

Do not use ammonia with chlorine bleach. Using ammonia with chlorine bleach will release a gas with a musty odour which may cause eye, nose, throat and lung irritation. Do not clean equipment in an enclosed area.

BUFFER ZONES TO PROTECT SENSITIVE HABITATS

Seasonal water bodies require buffer zones if there is water in them during application. Water bodies which do not fill on an annual basis need not be buffered.

For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies that minimize off-site drift, including meteorological conditions (e.g. wind direction, low wind speed) and spray equipment (e.g. coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), and estuarine/marine habitats.

For Coarse Spray (ASAE)

Method of Application	Target/Rate (L/ha)		Aquatic habitat of depth:		Terrestrial habitat
			< 1 m	> 1 m	
Field sprayer	Rangelands, permanent grass pastures, non-cropland including rights-of-way (6.2 L/ha)		2	1	70*
	Aerial	Rangelands and permanent grass pastures (6.2 L/ha)	Fixed-wing	65	20
Rotary-wing			40	15	300
Non-cropland including rights-of-way (6.2 L/ha)		Fixed-wing	225	125	800*
		Rotary-wing	95	50	700*

*Buffer zones for the protection of terrestrial habitats are not required for use on right-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

For Very Coarse Spray (ASAE)

Method of Application	Target/Rate (L/ha)		Aquatic habitat of depth:		Terrestrial habitat
			< 1 m	> 1 m	
Aerial	Rangelands and permanent grass pastures (6.2 L/ha)	Fixed-wing	50	15	425
		Rotary-wing	30	15	275
	Non-cropland including rights-of-way (6.2 L/ha)	Fixed-wing	150	75	800*
		Rotary-wing	60	35	600*

*Buffer zones for the protection of terrestrial habitats are not required for use on right-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

For Very Coarse – Extremely Coarse Spray (ASAE)

Method of Application	Target/Rate (L/ha)		Aquatic habitat of depth:		Terrestrial habitat
			< 1 m	> 1 m	
Aerial	Rangelands and permanent grass pastures, (6.2 L/ha)	Fixed-wing	25	15	325
		Rotary-wing	20	10	225
	Non-cropland including rights-of-way (6.2 L/ha)	Fixed-wing	125	65	800*
		Rotary-wing	50	35	500*

*Buffer zones for the protection of terrestrial habitats are not required for use on right-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

NOTE: Applicators may recalculate a site-specific buffer zone by combining information on current weather conditions and spray configuration for the following applications: all airblast applications, and for field and aerial applications which specify the following droplet size category wording on the product label: DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Grazon XC Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Grazon XC Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Grazon XC Herbicide or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.

- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor treated weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.dowagro.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

022818

Label Code: CN-31642-003-E

Replaces: CN-31642-002-E

Specimen Label Notes

Delete 3 day REI for established grass pastures, rangeland, perennial grassland in agricultural production as it does not apply to 2,4-D Choline products

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: Grazon* XC Herbicide

Issue Date: 01/15/2015

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Grazon* XC Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
2100 450 1ST STREET SW
CALGARY AB T2P 5H1
CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 01/15/2015

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid

Color amber

Odor Amine

Hazard Summary

WARNING!!

May cause allergic skin reaction.

May cause eye irritation.

Isolate area.

Highly toxic to fish and/or other aquatic organisms.

Potential Health Effects

Eyes: May cause moderate eye irritation.
May cause slight corneal injury.

Skin: Brief contact may cause slight skin irritation with local redness.
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Has demonstrated the potential for contact allergy in mice.

Inhalation: No adverse effects are anticipated from single exposure to mist.
Based on the available data, respiratory irritation was not observed.

Ingestion: Low toxicity if swallowed.
Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.
Symptoms may include tremors.
Lethargy.

Chronic Exposure: For similar active ingredient(s).
2,4-Dichlorophenoxyacetic acid.
In animals, effects have been reported on the following organs:
Liver.
Kidney.
Gastrointestinal tract.
Muscles.
Observations in animals include:
Gastrointestinal irritation.
Vomiting.
In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Mixture
This product is a mixture.

Component	CASRN	Weight percent
2,4-D choline salt	1048373-72-3	38.5%
Picloram triisopropanolamine salt	6753-47-5	14.44%
Propylene glycol	57-55-6	4.8%
Triisopropanolamine	122-20-3	3.3%
Balance	Not available	38.96%

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be available in work area.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: no data available

Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Spills or discharge to natural waterways is likely to kill aquatic organisms. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Avoid breathing vapor or mist. Wash thoroughly after handling. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Do not store in: Galvanized containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Propylene glycol	US WEEL	TWA	10 mg/m ³
	CA ON OEL	TWAEV Total	155 mg/m ³ 50 ppm
	CA ON OEL	TWAEV	10 mg/m ³
	CA ON OEL	TWA	155 mg/m ³ 50 ppm
	CA ON OEL	TWA	10 mg/m ³
Triisopropanolamine	Dow IHG	TWA	10 mg/m ³

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid
Color	amber
Odor	Amine
Odor Threshold	no data available
pH	6.89 <i>pH Electrode</i>
Melting point/range	Not applicable
Freezing point	No data available
Boiling point (760 mmHg)	no data available
Flash point	closed cup > 100 °C
Evaporation Rate (Butyl Acetate = 1)	no data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapor Pressure	no data available
Relative Vapor Density (air = 1)	no data available
Relative Density (water = 1)	no data available

Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
Dynamic Viscosity	42.3 mPa.s at 20.1 °C 16.1 mPa.s at 40.1 °C
Kinematic Viscosity	no data available
Explosive properties	No
Oxidizing properties	No significant increase (>5C) in temperature.
Liquid Density	1.2045 g/ml at 20 °C <i>Digital density meter</i>
Molecular weight	no data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Stable

Chemical stability: Stable

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: Avoid contact with: Acids. Bases Avoid contact with metals such as: Galvanized metals.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: carbon monoxide Carbon dioxide (CO₂)

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Symptoms may include tremors. Lethargy.

As product:

LD₅₀, Rat, female, 2,500 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD₅₀, Rat, male and female, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Based on the available data, respiratory irritation was not observed.

As product:

LC50, Rat, male and female, 4 Hour, dust/mist, > 6.05 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight corneal injury.

Sensitization

Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For similar active ingredient(s).

2,4-Dichlorophenoxyacetic acid.

In animals, effects have been reported on the following organs:

Liver.

Kidney.

Gastrointestinal tract.

Muscles.

Observations in animals include:

Gastrointestinal irritation.

Vomiting.

Carcinogenicity

For similar active ingredient(s). Picloram. Did not cause cancer in laboratory animals.

For similar active ingredient(s). Various animal cancer tests have shown no reliably positive association between 2,4-D exposure and cancer. Epidemiology studies on herbicide use have been both positive and negative with the majority being negative.

Teratogenicity

For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For similar active ingredient(s). Picloram. Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive toxicity

For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring.

For similar active ingredient(s). Picloram. In animal studies, did not interfere with reproduction.

Mutagenicity

Animal genetic toxicity studies were negative. In vitro genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Toxicity

Acute toxicity to fish

For similar active ingredient(s).

2,4-Dichlorophenoxyacetic acid.

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

As product:

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, > 102 mg/l

Acute toxicity to aquatic invertebrates

As product:

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 96 mg/l

Acute toxicity to algae/aquatic plants

As product:

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, > 100 mg/l

For similar material(s):

EC50, Lemna gibba, 14 d, 0.58 mg/l

Toxicity to Above Ground Organisms

As product:

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

oral LD50, Colinus virginianus (Bobwhite quail), 1247mg/kg bodyweight.

contact LD50, Apis mellifera (bees), 48 Hour, > 200µg/bee

oral LD50, Apis mellifera (bees), 48 Hour, 190.6µg/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, > 1,000 mg/kg

Persistence and degradability

2,4-D choline salt

Biodegradability: For similar active ingredient(s). Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

Picloram triisopropanolamine salt

Biodegradability: For similar active ingredient(s). Picloram. Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions. Biodegradation may occur under aerobic conditions (in the presence of oxygen). Surface photodegradation is expected with exposure to sunlight.

Propylene glycol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen).

10-day Window: Pass

Biodegradation: 81 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

10-day Window: Not applicable

Biodegradation: 96 %

Exposure time: 64 d

Method: OECD Test Guideline 306 or Equivalent

Theoretical Oxygen Demand: 1.68 mg/mg

Chemical Oxygen Demand: 1.53 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	69.000 %
10 d	70.000 %
20 d	86.000 %

Photodegradation

Atmospheric half-life: 10 Hour

Method: Estimated.

Triisopropanolamine

Biodegradability: Biodegradation under aerobic static laboratory conditions is high (BOD₂₀ or BOD₂₈/ThOD > 40%). Biodegradation rate may increase in soil and/or water with acclimation. Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 2.35 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: Radicaux OH

Atmospheric half-life: 3 Hour

Method: Estimated.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential**2,4-D choline salt**

Bioaccumulation: For similar active ingredient(s). Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Picloram triisopropanolamine salt

Bioaccumulation: No data available for this product. For similar active ingredient(s). Picloram. Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Propylene glycol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -1.07 Measured

Bioconcentration factor (BCF): 0.09 Estimated.

Triisopropanolamine

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -0.015 at 23 °C Measured

Bioconcentration factor (BCF): < 0.57 Fish. 42 d Measured

Balance

Bioaccumulation: No relevant data found.

Mobility in soil**2,4-D choline salt**

For similar active ingredient(s).

Potential for mobility in soil is high (Koc between 50 and 150).

Partition coefficient(Koc): 20 - 136 Measured

Picloram triisopropanolamine salt

For similar active ingredient(s).

Picloram.

Potential for mobility in soil is very high (Koc between 0 and 50).

Propylene glycol

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): < 1 Estimated.

Triisopropanolamine

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 10 Estimated.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The

identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(2,4-D Salt)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	2,4-D Salt

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(2,4-D Salt)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	2,4-D Salt
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(2,4-D Salt)
UN number	UN 3082
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act Registration Number: 31642

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	1	0

Revision

Identification Number: 101296745 / A215 / Issue Date: 01/15/2015 / Version: 1.1

DAS Code: GF-2766

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

CA ON OEL	Canada. Ontario OELs
Dow IHG	Dow Industrial Hygiene Guideline
TWA	8-hr TWA
TWAEV	time-weighted average exposure value
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



Dow AgroSciences

Halt™

Neutral antifoaming Agent For Use With Pesticide Spray Mixtures

NET CONTENTS: 140 mL

PRECAUTIONS

- Do not store near foodstuffs or feed
- Keep out of reach of children and domestic animals
- **Keep from freezing**

DIRECTIONS FOR USE

Many pesticides foam considerably when spray mixtures are prepared. A few drops of Halt added to the spray tank will stop foaming. Halt may be added to the spray tank during or after filling.

- Shake thoroughly before use.
- Add 7 mL (0.25 oz.) per 500 L (110 gal.) of spray volume.
- Contents are sufficient to treat 10,000 L (2,200 gal.) of spray mixture

Dow AgroSciences Canada Inc.

2400, 215 – 2nd Street SW
Calgary, Alberta
T2P 1M4
1-800-667-3852

®™ Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

Label Code: CN-Halt-003-E

Replaces: CN-Halt-002-E

Specimen Label notes:

Logo and address update

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: HALT™

Issue Date: 11/03/2015

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: HALT™

Recommended use of the chemical and restrictions on use

Identified uses: Product use: Antifoam agent.

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
2100 450 1ST STREET SW
CALGARY AB T2P 5H1
CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 11/03/2015

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid

Color White

Odor Mild

Hazard Summary

NO SIGNIFICANT IMMEDIATE HAZARDS FOR EMERGENCY RESPONSE ARE KNOWN.

No significant immediate hazards for emergency response are known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CASRN	Weight percent
Polysiloxanes	63148-53-8	17.4%
Plant Oil		5.0%
Silicic Acid	7699-41-4	2.0%
Balance	Not available	75.6%

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: This material does not burn. If exposed to fire from another source, use suitable extinguishing agent for that fire.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds.

Unusual Fire and Explosion Hazards: None known.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. This material does not burn. Fight fire for other material that is burning.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

Skin protection

Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

Other protection: No precautions other than clean body-covering clothing should be needed.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid
Color	White
Odor	Mild
Odor Threshold	No test data available
pH	6.5 - 7.5
Melting point/range	Not applicable
Freezing point	-1 °C
Boiling point (760 mmHg)	100 °C
Flash point	closed cup No test data available
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	23 kPa at 20 °C
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	1.0
Water solubility	Miscible with water
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Stable.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: None known.

Incompatible materials: None known.

Hazardous decomposition products: Does not decompose.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):

LD50, Rat, > 28,950 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Based on information for component(s):

LD50, Rabbit, > 19,400 mg/kg

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material or mist may cause respiratory irritation.

As product: The LC50 has not been determined.

Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause slight temporary eye irritation.

Corneal injury is unlikely.

May cause mild eye discomfort.

Sensitization

Based on information for component(s):

Did not cause allergic skin reactions when tested in humans.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Based on information for component(s):

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity

Based on information for component(s): Did not cause cancer in long-term animal studies which used routes of exposure considered relevant to industrial handling. Positive results have been reported in other studies using routes of exposure not relevant to industrial handling.

Teratogenicity

Based on information for component(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity

Based on information for component(s): In animal studies, did not interfere with reproduction.

Mutagenicity

Based on information for component(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on available information, aspiration hazard could not be determined.

COMPONENTS INFLUENCING TOXICOLOGY:**Polysiloxanes****Acute inhalation toxicity**

As product: The LC50 has not been determined.

Plant Oil**Acute inhalation toxicity**

The LC50 has not been determined.

Silicic Acid**Acute inhalation toxicity**

Dust may cause irritation to upper respiratory tract (nose and throat).

The LC50 has not been determined.

Balance**Acute inhalation toxicity**

The LC50 has not been determined.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity**Polysiloxanes****Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, *Oncorhynchus mykiss* (rainbow trout), 96 Hour, > 10,000 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
oral LD50, *Colinus virginianus* (Bobwhite quail), > 5,000 mg/kg

Plant Oil

Acute toxicity to fish

No relevant data found.

Silicic Acid

Acute toxicity to fish

No relevant data found.

Balance

Acute toxicity to fish

No relevant data found.

Persistence and degradability

Polysiloxanes

Biodegradability: Chemical degradation (hydrolysis) is expected in the environment.

Plant Oil

Biodegradability: No relevant data found.

Silicic Acid

Biodegradability: Biodegradation is not applicable.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Polysiloxanes

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 2.86 Estimated.

Plant Oil

Bioaccumulation: No relevant data found.

Silicic Acid

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

Polysiloxanes

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient(Koc): > 32000

Plant Oil

No relevant data found.

Silicic Acid

No relevant data found.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

**Transport in bulk
according to Annex I or II
of MARPOL 73/78 and the
IBC or IGC Code**

Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	0	0

Revision

Identification Number: 101198889 / A215 / Issue Date: 11/03/2015 / Version: 5.2

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

Container Label

GROUP	14	HERBICIDE
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HEAT® LQ

Water-based suspension concentrate herbicide

COMMERCIAL (AGRICULTURAL)

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND
INTERIOR OF BRITISH COLUMBIA ONLY

ACTIVE INGREDIENT: Saflufenacil342 g/L

Warning, contains the allergen soy

Contains 1,2-benzisothiazolin-3-one and 2-methyl-4-isothiazolin-3-one,
each at 0.0043% **OR** 0.0113%, as preservatives

REGISTRATION NO. 31468

PEST CONTROL PRODUCTS ACT

POTENTIAL SKIN SENSITIZER

READ THE LABEL AND BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT
1-800-454-2673**

NET CONTENTS: 0.5 L – 1000 L, Bulk

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, ON L5R 4H1
1-877-371-2273

HEAT is a registered trademark of BASF SE, used with permission by BASF Canada Inc.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

POTENTIAL SKIN SENSITIZER.

DO NOT take internally. Harmful if swallowed.

Avoid contact with skin, eyes or clothing.

Avoid inhalation of vapor or spray. Use with adequate ventilation.

Wash exposed areas of skin thoroughly after handling and before eating, drinking or smoking or going to the washroom. Take a shower immediately after work.

Wear a long-sleeved shirt, long pants, coveralls, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. In addition, wear goggles or face shield during mixing/loading. Gloves are not required during application within a closed cab.

If clothing becomes contaminated, remove immediately and wash. Store and wash all protective clothing separately from household laundry. Wash in detergent and hot water before reuse. Wear freshly laundered clothes daily.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants.

STORAGE

Protect from freezing. If this product has been stored where freezing temperatures have occurred, thaw the product completely at room temperature, then shake well before use.

DO NOT ship or store the product near food, feed, seed or fertilizers.

Store in original container with the lid tightly closed, in a cool, secure, well-ventilated area.

DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

HEAT® LQ

Water-based suspension concentrate herbicide for pre-seed, pre-emergent and chemfallow application for control of broadleaf weeds, for pre-harvest weed management in wheat, barley, and triticale, and for harvest aid in canola, dry common beans, chickpeas, red lentil varieties, dry field peas, faba beans, flax, mustard, soybeans and sunflowers

COMMERCIAL (AGRICULTURAL)

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND
INTERIOR OF BRITISH COLUMBIA ONLY

ACTIVE INGREDIENT: Saflufenacil342 g/L

Warning, contains the allergen soy

Contains 1,2-benzisothiazolin-3-one and 2-methyl-4-isothiazolin-3-one,
each at 0.0043% **OR** 0.0113%, as preservatives

REGISTRATION NO. 31468

PEST CONTROL PRODUCTS ACT

POTENTIAL SKIN SENSITIZER

READ THE LABEL AND BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT
1-800-454-2673**

NET CONTENTS: 0.5 L – 1000 L, Bulk

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, ON L5R 4H1
1-877-371-2273

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1.0 GENERAL INFORMATION

HEAT LQ is a water-based suspension concentrate herbicide for broadleaf weed control.

HEAT LQ is rapidly absorbed by root and foliar uptake; once absorbed it exhibits mobility in plants. **HEAT LQ** is a potent inhibitor of protoporphyrinogen oxidase (PPO). Cell membrane damage induced by inhibition of PPO leads to plant death. Susceptible weeds develop injury symptoms within hours of application under active growing conditions; plant death occurs within 3 to 5 days depending upon growing conditions.

HEAT LQ is recommended for pre-seed and pre-emergent applications. **HEAT LQ** may also be applied in fallow crop lands and post-harvest and as a pre-harvest weed management treatment and as a harvest aid in registered crops.

HEAT LQ does not control grass weeds. **HEAT LQ** should always be tank mixed with glyphosate for broad spectrum weed control.

HEAT LQ is a broad spectrum weed resistance management tool for activity on a range of broadleaf weeds.

2.0 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

POTENTIAL SKIN SENSITIZER.

DO NOT take internally. Harmful if swallowed.

Avoid contact with skin, eyes or clothing.

Avoid inhalation of vapor or spray. Use with adequate ventilation.

Wash exposed areas of skin thoroughly after handling and before eating, drinking or smoking or going to the washroom. Take a shower immediately after work.

Wear a long-sleeved shirt, long pants, coveralls, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. In addition, wear goggles or face shield during mixing/loading. Gloves are not required during application within a closed cab.

If clothing becomes contaminated, remove immediately and wash. Store and wash all protective clothing separately from household laundry. Wash in detergent and hot water before reuse. Wear freshly laundered clothes daily.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

3.0 FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

4.0 ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under Section 14 (Restrictions and Limitations).

5.0 STORAGE

Protect from freezing. If this product has been stored where freezing temperatures have occurred, thaw the product completely at room temperature, then shake well before use.

DO NOT ship or store the product near food, feed, seed or fertilizers.

Store in original container with the lid tightly closed, in a cool, secure, well-ventilated area.

6.0 DISPOSAL

For Recyclable containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Returnable-Refillable Containers

For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

7.0 NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

8.0 REGISTERED CROPS

8.1 PRE-SEED OR PRE-EMERGENT

HEAT LQ is registered for use prior to the following crops as a pre-seed or pre-emergent application.

• Barley
• Canary seed
• Chickpeas
• Faba beans
• Lentils*
• Oats
• Peas (dried field)
• Wheat (spring, winter and durum)
• Corn
• Soybeans*

* Rate restrictions apply. Refer to crop specific section for details.

8.2 CHEMFALLOW

8.3 HARVEST AID

HEAT LQ is registered for use as a desiccant in the following crops:

• Canola (all types)
• Chickpeas
• Dry common beans
• Faba beans
• Flax
• Lentils (red lentil varieties only) ¹
• Mustard ²
• Peas (dried field)
• Soybeans
• Sunflower

¹ Always tank mix **HEAT LQ** with glyphosate when applying as a desiccant to red lentils.

² All classes, including brown, oriental, canola quality *Brassica juncea*, *Brassica juncea* varieties with the **Clearfield®** trait, and yellow mustard.

8.4 PREHARVEST WEED MANAGEMENT

HEAT LQ is registered for use as a pre-harvest treatment to improve dry down of volunteer canola (all types including Roundup Ready), common ragweed, Canada fleabane, redroot pigweed and wild buckwheat in the following crops:

• Barley (including feed varieties)
• Triticale
• Wheat (including durum, spring and winter wheat)

9.0 DIRECTIONS FOR USE

9.1 CROP USE RATES – HEAT LQ

For all **HEAT LQ** solo applications applied pre-seed, pre-emergent or as a chemfallow treatment, use MERGE® Adjuvant at 0.5 – 1 L/ha.

9.1.1 PRE-SEED OR PRE-EMERGENT

Crop	Use Rate (mL/ha)
Lentils ¹	53
Soybean ²	53 – 73
Barley	53 – 146
Canary seed	53 – 146
Chickpea Kabuli	53 – 146
Corn (field, sweet ³)	53 – 146
Faba beans	53 – 146
Oats	53 – 146
Peas (dried field)	53 – 146
Wheat (spring, durum, winter)	53 – 146
Chemfallow	53 – 146

¹ Rate restrictions apply. Do not use rates higher than 53 mL/ha or injury could result. See crop specific section for additional details.

² Rate restrictions apply. Do not use rates higher than 73 mL/ha or injury could result. See crop specific section for additional details. Some soybeans cultivars may be more sensitive to saflufenacil and injury might occur.

³ Some sweet corn hybrids may be more sensitive to saflufenacil and injury might occur.

9.1.2 CHEMFALLOW

Crop	Use Rate (mL/ha)	Application Timing
Chemfallow	53 – 146	Post-emergence in fallow croplands and post-harvest.

9.1.3 HARVEST AID

HEAT LQ may be used as a harvest aid to accelerate the rate of crop dry down and improve crop uniformity to facilitate direct combining. Early application may result in yield loss.

The dry down of crops will be best under favorable environmental conditions like warm temperatures, good moisture conditions and low humidity.

Harvesting of crops can be done when plant material is dry and seed moisture level allows efficient harvesting. Under ideal conditions, harvest can normally commence within 7-14 days after desiccation when applied at the appropriate crop stage recommendation. Adverse weather conditions such as rainfall, cool temperatures and high humidity may slow the plant desiccation and keep seed moisture levels high which can delay commencement of harvest after the **HEAT LQ** application. Consult your BASF representative for further information on the timing of harvest after a pre-harvest application.

HEAT LQ when used as harvest aid will not affect the seed germination if applied according to label recommendations.

Crop	Use Rate (mL/ha)	Application Timing
Canola (all types), faba beans, chickpeas, dry common beans, flax, lentils ¹ , mustard ² , peas (dried field), soybeans, and sunflower	106	Harvest aid

¹ Apply only to red lentil varieties.

² All classes, including brown, oriental, canola quality *Brassica juncea*, *Brassica juncea* varieties with the **Clearfield** trait, and yellow mustard.

Aerial Application

HEAT LQ can be used for aerial application when used as a harvest aid or a pre-harvest weed management (see section 9.1.4) in the registered crops.

Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing- or rotor-span.

Ensure thorough coverage of foliage. Consult nozzle manufacturer's recommendation for spray pressures for specific nozzles.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Do not apply during periods of dead calm.

Observe buffer zones specified under Section 14 (Restrictions and Limitations)

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, a long-sleeved shirt, long pants, coveralls, shoes plus socks, and goggles or face shield during mixing/loading, cleanup and repair. Applicators must wear long-sleeved shirt, long pants, and shoes plus socks. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

HARVEST AID - CROP SPECIFIC RECOMMENDATIONS STAND-ALONE

See Section 9.1.3, above, for further use instructions.

9.1.3.1 DESICCATION - DRY COMMON BEANS / SOYBEANS

Rate	106 mL/ha of HEAT LQ + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when stems are green to brown in colour and pods are mature (yellow – brown) and 80 – 90% of the original leaves have dropped.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application, use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	Do not graze or feed treated hay or straw to livestock.

9.1.3.2 DESICCATION - CHICKPEAS

Rate	106 mL/ha of HEAT LQ + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green. For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Dry down is less complete in Kabuli type due to its thick pod wall.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	Do not graze or feed treated hay or straw to livestock.

9.1.3.3 DESICCATION – FIELD PEAS

Rate	106 mL/ha of HEAT LQ + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when the majority of pods are brown (70 – 80%).
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.

Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	Desiccation treated pea vines may be grazed or fed to livestock.

9.1.3.4 DESICCATION – SUNFLOWER

Rate	106 mL/ha of HEAT LQ + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when the backs of the heads and bracts are turning yellow, and seed moisture is 20 – 30%.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.

9.1.3.5 DESICCATION – CANOLA (ALL TYPES) AND MUSTARD¹

Rate	106 mL/ha of HEAT LQ + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when 60 – 75% of seeds have changed colour.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	It is recommended that the application of HEAT LQ as a desiccant in canola and mustard be made to shatter resistant varieties.

¹ All classes, including brown, oriental, canola quality *Brassica juncea*, *Brassica juncea* varieties with the **Clearfield** trait, and yellow mustard.

9.1.3.6 DESICCATION – FLAX

Rate	106 mL/ha of HEAT LQ + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when 75% of bolls have turned colour.

Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.

9.1.3.7 DESICCATION – FAB BEANS

Rate	106 mL/ha of HEAT LQ + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when 80% of lower pods have turned black, middle pods have turned yellow/tan, and top green pods have firm seed.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	Do not graze or feed treated hay or straw to livestock.

9.1.4 PRE-HARVEST WEED MANAGEMENT

HEAT LQ may be used as a pre-harvest treatment in wheat (including durum, spring, and winter wheat), barley (including feed varieties) and triticale to improve dry down of volunteer canola (all types including Roundup Ready), common ragweed, Canada fleabane, redroot pigweed and wild buckwheat and to facilitate direct combining. Early application may result in yield loss.

HEAT LQ when used alone as a pre-harvest treatment will not affect the seed germination if applied according to label recommendations.

WHEAT, BARLEY AND TRITICALE

Rate	73 – 146 mL/ha of HEAT LQ + adjuvant
Water Volume	100 – 200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Hard dough stage; a thumbnail impression remains on seed; less than 30% moisture.
Weeds Controlled	Improved dry down of volunteer canola (all types including Roundup Ready), common ragweed, Canada fleabane, redroot pigweed and wild buckwheat.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.

Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	Treated barley, wheat and triticale straw may be grazed or fed to livestock. Use higher water volume for dense crop stands and higher weed pressure.

9.2 WEEDS CONTROLLED

HEAT LQ can be applied pre-seed or pre-emergence to the crop to control weeds listed below.

HEAT LQ should always be applied in combination with glyphosate for broad spectrum weed control including grassy weeds.

For Rapid Burndown (Pre-seed or Pre-emergent)

Use Rate: 53 mL/ha

Weed	Maximum Weed Stage
Kochia	15 cm
Canada fleabane	8 leaf
Cleavers	4-whorl stage
Lamb's-quarters	8 leaf
Narrow-leaved hawk's beard	8 cm
Redroot pigweed	8 leaf
Round-leaved mallow	8 leaf
Stinkweed	8 leaf
Volunteer canola (all types including Roundup Ready)	8 leaf
Wild buckwheat	8 leaf
Wild mustard	8 leaf

Use Rate: 73 mL/ha

HEAT LQ applied pre-seed or pre-emergence at 73 mL/ha will provide rapid burndown control of the following weeds in addition to those listed above:

Weed	Maximum Weed Stage
Common ragweed	8 leaf
Giant ragweed	8 leaf
Lady's-thumb	6 leaf
Perennial sow-thistle (top growth burndown control)	8 leaf

Weed	Maximum Weed Stage
Prickly lettuce (top growth only)	9 leaf
Shepherd's-purse	Full flower

**For Rapid Burndown and Suppression of Secondary Weed Flushes
(Pre-seed or Pre-emergent)**

Use Rate: 106 - 146 mL/ha

Weed	Maximum Weed Stage
Cleavers	4-whorl stage
Redroot pigweed	8 leaf
Stinkweed	8 leaf
Volunteer canola (all types including Roundup Ready)	8 leaf
Wild buckwheat	8 leaf
Wild mustard	8 leaf

9.3 TANK MIXES – PRE-SEED, PRE-EMERGENT AND CHEMFALLOW

9.3.1 HEAT LQ + GLYPHOSATE

For broad spectrum weed control, **HEAT LQ** should always be tank mixed with glyphosate present as isopropylamine salt, di-ammonium salt or potassium salt. **HEAT LQ** is compatible with all liquid glyphosate formulations in which glyphosate is present as isopropylamine salt, di-ammonium salt or potassium salt.

Tank mixing **HEAT LQ** with glyphosate will provide control of all weeds controlled by glyphosate in addition to the broadleaf weeds listed on the **HEAT LQ** label. Consult the glyphosate label for a complete list of weeds controlled by glyphosate.

Tank mixing is a recognized strategy to delay herbicide resistance as well as improve the weed spectrum controlled.

TANK MIX CROP USE RATES

HEAT LQ + Glyphosate Use Rate (360 g/L equivalent) 1.25 – 2.5 L/ha

Crop	HEAT LQ Use Rate (mL/ha)
Lentils ¹	53
Soybean ²	53 – 73
Barley	53 – 146
Canary seed	53 – 146
Chickpea Kabuli	53 – 146
Corn (field, sweet ³)	53 – 146
Faba beans	53 – 146
Oats	53 – 146
Peas (dried field)	53 – 146
Wheat (spring, durum, winter)	53 – 146
Chemfallow	53 – 146

¹ Rate restrictions apply. Do not use rates higher than 53 mL/ha or crop injury may result. See crop specific section for additional details.

² Rate restrictions apply. Do not use rates higher than 73 mL/ha or crop injury may result. See crop specific section for additional details. Some soybeans cultivars may be more sensitive to saflufenacil and injury might occur.

³ Some sweet corn hybrids may be more sensitive to saflufenacil and injury might occur.

For tank mix applications of **HEAT LQ** with glyphosate, use MERGE Adjuvant or Amigo® at 0.5 – 1 L/ha.

Do not apply tank mix combinations by air.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

When a tank mix is used, consult the labels of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarse spray (ASAE) category indicated on the labels for those tank mix partners.

TANK MIX WEEDS CONTROLLED

Rapid Burndown (Pre-seed or Pre-emergent)

HEAT LQ when tank mixed with glyphosate will provide rapid burndown of the following weeds in addition to those weeds listed under **HEAT LQ** applied alone.

Use Rate: 53 mL/ha

Weed	Maximum Weed Stage
Dandelion (top growth burndown control only)	15 cm
Flixweed	8 leaf

9.4 CROP SPECIFIC RECOMMENDATIONS - PRE-SEED OR PRE-EMERGENT

9.4.1 CHICKPEAS, FABA BEANS AND PEAS (dried field)

Timing	Pre-seed or Pre-emergent
Rate	53 – 146 mL/ha of HEAT LQ + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant or Amigo at a rate of 0.5 – 1 L/ha.
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT LQ . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT LQ .

9.4.2 CEREALS – BARLEY, CANARY SEED, OATS AND WHEAT (spring, durum, winter)

Timing	Pre-seed or Pre-emergent
Rate	53 – 146 mL/ha of HEAT LQ + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant or Amigo at a rate of 0.5 – 1 L/ha
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT LQ . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT LQ .

9.4.3 SOYBEANS

Timing	Pre-seed or Pre-emergent
Rate	53 – 73 mL/ha of HEAT LQ + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant or Amigo at a rate of 0.5 – 1 L/ha.

Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT LQ . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT LQ .
Remarks	Some soybean cultivars may be more sensitive to saflufenacil and injury might occur. When applying 73 mL/ha pre-emergent to soybeans, DO NOT apply to coarse textured soils with less than 2% organic matter. When applying pre-emergent to soybeans, apply prior to when the soybeans cause the ground to crack and no more than 3 days after planting.

9.4.4 LENTILS (including Clearfield® Lentils)

Timing	Pre-seed or Pre-emergent
Rate	53 mL/ha of HEAT LQ + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant or Amigo at a rate of 0.5 – 1 L/ha.
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT LQ . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT LQ .
Remarks	Rainfall shortly after product application can result in slight injury to the crop. Lentils will be more susceptible to injury on coarse texture and low organic matter soils. Injury will usually appear as leaf tissue necrosis on the outer edges of the leaves. Lentils will grow out of injury symptoms, and yield will not be impacted at recommended rates. The user should contact BASF before applying any other soil applied herbicide with, before, or after applications of HEAT LQ + glyphosate. The addition of other soil applied herbicides may increase the sensitivity of lentils to HEAT LQ and injury may result.

9.4.5 CORN (field, sweet)

Timing	Pre-seed or Pre-emergent
Rate	53 – 146 mL/ha of HEAT LQ + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant or Amigo at a rate of 0.5 – 1 L/ha.
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT LQ . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT LQ .
Remarks	Some sweet corn hybrids may be more sensitive to saflufenacil and injury might occur.

9.5 CHEMFALLOW

Timing	Chemfallow
Rate	53 – 146 mL/ha of HEAT LQ + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant or Amigo at a rate of 0.5 – 1 L/ha.
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT LQ . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT LQ .
Remarks	Apply to actively growing weeds less than 15 cm in height. Better coverage of the product results in enhanced control of weeds. For application to larger weeds or dense weed infestations, use minimum water volume of 100 L per hectare.

9.6 HARVEST AID - TANK-MIX CROP SPECIFIC RECOMMENDATIONS

HEAT LQ may be used as a harvest aid to accelerate the rate of crop dry down and improve crop uniformity to facilitate direct combining. Early application may result in yield loss.

The dry down of crops will be best under favorable environmental conditions like warm temperatures, good moisture conditions and low humidity.

Harvesting of crops can be done when plant material is dry and seed moisture level allows efficient harvesting. Under ideal conditions, harvest can normally commence within 7-14 days after desiccation when applied at the appropriate crop stage recommendation. Adverse weather conditions such as rainfall, cool temperatures and high humidity may slow the plant desiccation and keep seed moisture levels high which can delay commencement of harvest after the **HEAT LQ** application. Consult your BASF representative for further information on the timing of harvest after a pre-harvest application.

HEAT LQ may be applied in tank mix with glyphosate for additional pre-harvest weed control.

The tank mix with glyphosate may affect the seed germination. Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.

9.6.1 DESICCATION - DRY COMMON BEANS*/ SOYBEANS

Timing	Desiccation of DRY COMMON BEANS* / SOYBEANS
Rate	106 mL/ha of HEAT LQ + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Remarks	*Consult glyphosate label or BASF representative for information on the use on specific varieties of dry common beans.

Application Timing	Apply when stems are green to brown in colour and pods are mature (yellow – brown) and 80 – 90% of the original leaves have dropped.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	<p>Do not graze or feed treated hay or straw to livestock.</p> <p>See Section 9.6 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.</p> <p>Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.</p>

9.6.2 DESICCATION - CHICKPEAS

Timing	Desiccation of CHICKPEAS
Rate	106 mL/ha of HEAT LQ + 900 g a.e/ha glyphosate (1.67 L/ha of 540 g/L glyphosate formulation) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	<p>For Desi type, apply at the time swathng would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green.</p> <p>For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Dry down is less complete in Kabuli type due to its thick pod wall.</p>
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	<p>Do not graze or feed treated hay or straw to livestock.</p> <p>See Section 9.6 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.</p> <p>Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.</p>

9.6.3 DESICCATION - RED LENTIL VARIETIES

Timing	Desiccation of RED LENTIL VARIETIES
Rate	106 mL/ha of HEAT LQ + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.

Application Timing	Apply when lowermost pods (bottom 15%) are brown and rattle when shaken.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	<p>Apply only to red lentil varieties. Do not graze or feed treated hay or straw to livestock.</p> <p>See Section 9.6 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.</p> <p>Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.</p>

9.6.4 DESICCATION – FIELD PEAS

Timing	Desiccation of FIELD PEAS
Rate	106 mL/ha of HEAT LQ + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when the majority of pods are brown (70–80%).
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	<p>See Section 9.6 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.</p> <p>Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.</p>

9.6.5 DESICCATION – CANOLA (ALL TYPES) AND MUSTARD¹

Timing	Desiccation of CANOLA (all types) and MUSTARD
Rate	106 mL/ha of HEAT LQ + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when 60 – 75% of seeds have changed colour.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.

Remarks	<p>It is recommended that the application of HEAT LQ as a desiccant in canola and mustard be made to shatter resistant varieties. See Section 9.6 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.</p> <p>Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.</p>
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¹ All classes, including brown, oriental, canola quality *Brassica juncea*, *Brassica juncea* varieties with the **Clearfield** trait, and yellow mustard.

9.6.6 DESICCATION – FLAX

Timing	Desiccation of FLAX
Rate	106 mL/ha of HEAT LQ + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when 75% of bolls have turned colour.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	<p>See Section 9.6 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.</p> <p>Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.</p>

9.6.7 DESICCATION - FAB A BEANS

Timing	Desiccation of FAB A BEANS
Rate	106 mL/ha of HEAT LQ + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when 80% of lower pods have turned black, middle pods have turned yellow/tan, and top green pods have firm seed.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.

Remarks	<p>Do not graze or feed treated hay or straw to livestock.</p> <p>See Section 9.6 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.</p> <p>Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.</p>
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9.7 PRE-HARVEST WEED MANAGEMENT – TANK MIX CROP SPECIFIC RECOMMENDATIONS

HEAT LQ may be used as a pre-harvest treatment in wheat (including durum, spring and winter wheat), barley (including feed varieties) and triticale to improve dry down of volunteer canola (all types including Roundup Ready), common ragweed, Canada fleabane, redroot pigweed and wild buckwheat. Tank mixing **HEAT LQ** with glyphosate will provide additional pre-harvest weed management to the crop dry down provided by glyphosate.

The tank mix with glyphosate may affect the seed germination. Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.

WHEAT AND BARLEY

Rate	73 – 146 mL/ha of HEAT LQ + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha.
Application Timing	Hard dough stage; a thumbnail impression remains on seed; less than 30% moisture.
Weeds Controlled	Improved dry down of volunteer canola (all types including Roundup Ready), common ragweed, Canada fleabane, redroot pigweed and wild buckwheat. Consult the glyphosate label regarding additional pre-harvest weed control.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	<p>See Section 9.6 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.</p> <p>Use higher water volume for dense crop stands and higher weed pressure.</p> <p>Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.</p>

10.0 MIXING INSTRUCTIONS

1. When using **HEAT LQ**, always start with a clean sprayer. Thoroughly clean the sprayer by flushing the system with water containing detergent. Refer to previously applied product labels for specific cleaning instructions.
2. Fill clean spray tank half full with clean water. Start agitation system.
3. Add **HEAT LQ** first and continue to agitate until thoroughly mixed.
4. When tank mixing, add tank-mix partner and continue agitation.
5. Add the correct amount of MERGE Adjuvant or Amigo.
6. Continue agitation while filling the remainder of the tank with water necessary to fill the spray tank.
7. Continue to agitate or run the by-pass system.
8. After any break in spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to remix the spray materials. Do not allow the mixture to sit overnight.
9. If a white residue starts to build up in the tank, drain it and clean the tank with strong detergent solution.
10. Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

Dispose of all rinsings in accordance with provincial regulations.

11.0 PRE-HARVEST INTERVAL (PHI)

The following pre-harvest intervals should be observed for respective crops when **HEAT LQ** is used as a pre-seed or pre-emergent application.

Crop	PHI (days)
Barley	60
Canary seed	60
Chickpea	60
Corn (field, sweet)	60
Faba beans	60
Lentils	60
Oats	60

Crop	PHI (days)
Peas (dried field)	60
Soybean	60
Wheat (spring, winter, durum)	60

The following pre-harvest intervals should be observed for respective crops when **HEAT LQ** is used as a harvest aid or a pre-harvest treatment for weed management.

Crop	PHI (days)
• Barley	3
• Canola	3
• Chickpeas	2
• Dry common beans	2
• Faba beans	2
• Flax	3
• Lentils	3
• Mustard	3
• Peas (dried field)	3
• Soybeans	3
• Sunflower	7
• Triticale	3
• Wheat	3

12.0 FOLLOW CROPPING

The crops listed can be safely grown after a spring application of **HEAT LQ**.

Plant Back Crops In case of crop failure, the following crops can be planted in the same season ¹	Rotational Crops The following crops can be planted anytime in the following season
Barley Canary seed Chickpeas Corn (field and sweet) Lentils* Oats Dry field peas Soybean* Wheat (spring, winter & durum)	Barley (spring, winter, malting) Canary seed Canola Chickpeas Corn (field and sweet) Dry common beans Flax Lentils Mustard Oats Dry field peas Soybean Triticale Wheat (spring, winter & durum)
* Rate restrictions apply. Lentils and soybeans can only be grown as plant back crops provided that a maximum product use rate of 53 mL/ha and 73 mL/ha, respectively, was used in the previous crop.	

¹ A second application of **HEAT LQ** cannot be made in the rescue crop.

The crops listed below can be safely grown after a fall application of **HEAT LQ**.

Rotational crops that can be planted in the following spring after application	Rotational crops that can be planted in the second spring after application
Barley Canary seed Canola Chickpeas Corn (field and sweet) Flax Lentils Oats Dry field peas Soybeans Wheat (spring, winter, and durum)	All crops

13.0 SPRAYING INSTRUCTIONS

Water volume and spray pressure Conventional ground application

Use sprayers equipped with standard flat nozzles. The use of 80°-110° stainless steel flat fan nozzle is recommended for optimum spray coverage with nozzles tilted 45° forward to ensure better coverage.

Thoroughly clean all screens to prevent nozzle clogging. Apply in a water volume of 50-100 L/ha and at a pressure of 240 kPa. For applications to dense weed infestations and thick canopies, use a higher water volume at pressures of 275 kPa.

Better coverage of the product results in enhanced control of weeds.

14.0 RESTRICTIONS AND LIMITATIONS

1. Wash sprayer thoroughly after use to avoid damage to the next crop sprayed.
2. DO NOT APPLY BY AIR, unless specified otherwise.
3. DO NOT enter or allow worker entry into treated areas for 12 hours after application.
4. Field corn – Corn forage and silage can be harvested, used as feed or grazed 60 or more days after application of **HEAT LQ**.
5. Legume forage (chickpeas, faba beans, field peas and lentils) may be used as feed or grazed 60 or more days after application of **HEAT LQ**. Desiccation-treated pea vines may be grazed or fed to livestock.
6. Small grains (wheat, barley and oats) – forage and hay can be used as feed or grazed 30 or more days after application of **HEAT LQ**. Pre-harvest treated barley, wheat and triticale straw may be grazed or fed to livestock
7. Soybeans may be used as feed or grazed 60 or more days after application of **HEAT LQ**.
8. Soybeans, chickpeas and dry common beans – Do not graze or feed treated hay or straw to livestock when **HEAT LQ** is used as a harvest aid.
9. DO NOT apply directly to water. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
10. To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.
11. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

12. In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact BASF at 1-877-371-2273 or www.agsolutions.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by BASF.

Buffer zones

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotor-span.

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands).

Method of application	Crop	Buffer zones (metres) required for the protection of terrestrial habitats	
Field sprayer*	Lentils (pre-seed or pre-emergent)	3	
	Soybean (pre-seed or pre-emergent)	4	
	Barley, canary seed, chickpea, corn, faba beans, oats, dried field peas, wheat (pre-seed or pre-emergent); Chemfallow; Canola, faba beans, flax, lentil, chickpea, soybean, mustard, dried field peas, sunflower, dry common beans, wheat, barley, triticale (harvest aid)	10	
Aerial	Canola, faba beans, flax, lentil, chickpea, mustard, soybean, dried field peas, sunflower, dry common bean, wheat, barley, triticale (harvest aid)	Fixed wing	175
		Rotary wing	150

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the

labeled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labeled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

15.0 RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **HEAT LQ** is a Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to **HEAT LQ** and other Group 14 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **HEAT LQ** or other Group 14 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact BASF at 1-877-371-2273 or at www.agsolutions.ca.

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1. Identification

Product identifier used on the label

Heat LQ

Recommended use of the chemical and restriction on use

Recommended use*: herbicide

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:

BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1, CANADA

Telephone: +1 289 360-1300

Emergency telephone number

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

Other means of identification

PCP # 31468

Synonyms: Saflufenacil

2. Hazards Identification

According to Controlled Products Regulations (CPR) (SOR/88-66)

Emergency overview

WARNING:

Contains the allergen soy.
Contains 1,2-benzisothiazolin-3-one as a preservative.
Contains 2-methyl-4-isothiazolin-3-one as a preservative.
Potential skin sensitizer.
KEEP OUT OF REACH OF CHILDREN.
Harmful if swallowed.

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Avoid contact with the skin, eyes and clothing.
Avoid inhalation of mists/vapours.
Wash thoroughly after handling.

3. Composition / Information on Ingredients

According to Hazardous Products Regulations (HPR) (SOR/2015-17)

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
372137-35-4	29.74 %	Saflufenacil

4. First-Aid Measures

Description of first aid measures

General advice:

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

If on skin:

Wash thoroughly with soap and water.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

If swallowed:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
foam, dry powder, carbon dioxide, water spray

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Special hazards arising from the substance or mixture

Hazards during fire-fighting:

carbon monoxide, carbon dioxide, Hydrocarbons, sulfur oxides, nitrogen oxides, halogenated compounds

If product is heated above decomposition temperature, toxic vapours will be released. The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

In case of fire and/or explosion do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing. Avoid contact with the skin, eyes and clothing. Do not breathe vapour/spray.

Environmental precautions

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).

For large amounts: Dike spillage. Pump off product.

Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labeled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations.

7. Handling and Storage

Precautions for safe handling

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:

No special precautions necessary. The substance/product is non-combustible. Product is not explosive.

Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds.

Further information on storage conditions: Keep away from heat. Protect from direct sunlight.

Protect from temperatures below: -5 °C

Changes in the properties of the product may occur if substance/product is stored below indicated temperature for extended periods of time.

Protect from temperatures above: 40 °C

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Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

8. Exposure Controls/Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

No occupational exposure limits known.

Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Store work clothing separately. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid
Odour:	faint odour, fruity
Odour threshold:	Not determined due to potential health hazard by inhalation.
Colour:	white
pH value:	approx. 4 - 6 (approx. 20 °C) (as aqueous suspension)

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Melting point:	approx. 0 °C Information based on the main components.	
boiling temperature:	100 °C	
Sublimation point:	No applicable information available.	
Flash point:	No flash point - Measurement made up to the boiling point.	
Flammability:	not applicable	
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.	
Upper explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.	
Autoignition:	443 °C	(Directive 92/69/EEC, A.15)
Vapour pressure:	approx. 23 hPa (20 °C) Information applies to the solvent.	
Density:	approx. 1.15 g/cm ³ (20 °C)	
Relative density:	No applicable information available.	
Vapour density:	not applicable	
Partitioning coefficient n-octanol/water (log Pow):	No applicable information available.	
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:	33 mPa.s (20 °C)	
Viscosity, kinematic:	No applicable information available.	
Solubility in water:	dispersible	
Solubility (quantitative):	No applicable information available.	
Solubility (qualitative):	No applicable information available.	
Evaporation rate:	not applicable	
Other Information:	The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.	

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:

not fire-propagating (Directive 2004/73/EC, A.21)

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

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Conditions to avoid

Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures.

Incompatible materials

strong bases, strong acids, strong oxidizing agents

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Slightly toxic after single ingestion. Relatively nontoxic after short-term skin contact. Relatively nontoxic after short-term inhalation.

Oral

Type of value: LD50

Species: rat

Value: > 2,000 mg/kg

No mortality was observed.

Inhalation

Type of value: LC50

Species: rat

Value: > 5.5 mg/l

Exposure time: 4 h

An aerosol was tested.

No mortality was observed.

Dermal

Type of value: LD50

Species: rat

Value: > 5,000 mg/kg

No mortality was observed.

Assessment other acute effects

Assessment of STOT single:

The available information is not sufficient for the evaluation of specific target organ toxicity.

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Skin

Species: rabbit
Result: non-irritant

Eye

Species: rabbit
Result: non-irritant

Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

modified Buehler test

Species: guinea pig
Result: Skin sensitizing effects were not observed in animal studies.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. No substance-specific organotoxicity was observed after repeated administration to animals.

Genetic toxicity

Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

Reproductive toxicity

Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity

Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: saflufenacil

Assessment of teratogenicity: Indications of possible developmental toxicity/teratogenicity were seen in animal studies.

Other Information

Misuse can be harmful to health.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

12. Ecological Information

Toxicity

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Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to fish. There is a high probability that the product is not acutely harmful to aquatic invertebrates. Very toxic (acute effect) to aquatic plants.

Toxicity to fish

Information on: saflufenacil

LC50 (96 h) > 96.8 mg/l, Pimephales promelas (OECD Guideline 203, static)

No observed effect concentration (33 d) >= 9.7 mg/l, Pimephales promelas (OECD Guideline 203, static)

Aquatic invertebrates

Information on: saflufenacil

EC50 (96 h) 8.0 mg/l, Daphnia magna (static)

Aquatic plants

Information on: saflufenacil

EC50 (96 h) 0.113 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

Assessment of terrestrial toxicity

With high probability not acutely harmful to terrestrial organisms.

Persistence and degradability

Assessment biodegradation and elimination (H2O)

Information on: saflufenacil

Not readily biodegradable (by OECD criteria).

Bioaccumulative potential

Assessment bioaccumulation potential

Information on: saflufenacil

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Mobility in soil

Assessment transport between environmental compartments

The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: saflufenacil

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Following exposure to soil, the product trickles away and can - dependant on degradation - be transported to deeper soil areas with larger water loads.

Additional information

Other ecotoxicological advice:
Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:
See product label for disposal and recycling instructions.

14. Transport Information

Land transport

TDG

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Marine pollutant: YES
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains SAFLUFENACIL)

Air transport

IATA/ICAO

Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains SAFLUFENACIL)

15. Regulatory Information

Federal Regulations

Registration status:

Chemical DSL, CA released; restriction on quantity / not listed

Crop Protection DSL, CA released / exempt

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(30628505/SDS_CPA_CA/EN)

16. Other Information

SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2017/11/15

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

END OF DATA SHEET

Container Label

GROUP	14	HERBICIDE
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HEAT® WG

Water soluble granular herbicide for pre-seed, pre-emergent and chemfallow application for control of broadleaf weeds, for pre-harvest weed management in wheat, barley and triticale, and for harvest aid in canola, dry common beans, chickpeas, dry field peas, flax, red lentil varieties, mustard, soybeans and sunflowers

COMMERCIAL (AGRICULTURAL)

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND
PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

ACTIVE INGREDIENT: Saflufenacil..... 70%

Warning: Contains the allergen sulfites

REGISTRATION NO. 29368

PEST CONTROL PRODUCTS ACT

CAUTION – SKIN IRRITANT

READ THE LABEL AND BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT
1-800-454-2673**

NET CONTENTS: 844 g

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, ON L5R 4H1
1-877-371-2273

HEAT is a registered trademark of BASF SE, used with permission by BASF Canada Inc.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. **DO NOT** take internally. Harmful if swallowed.
3. **DO NOT** get in eyes or on skin. Causes eye and skin irritation. Avoid inhalation of vapor or spray.
4. Wash exposed areas of skin thoroughly after handling and before eating, drinking or smoking or going to the washroom. Take a shower immediately after work.
5. Wear a long-sleeved shirt, long pants, coveralls, chemical resistant gloves and shoes plus socks during mixing, loading, clean-up and repair. In addition, wear goggles or face shield during mixing/loading. Applicators must wear long-sleeved shirt, long pants, coveralls and shoes plus socks.

Applicators treating corn fields must wear chemical resistant coveralls over long-sleeved shirt, long pants and chemical resistant gloves during mixing, loading, application, clean-up and repair, and additionally, goggles or a face shield during mixing and loading. Applicators performing mixing, loading, and application must use a closed mixing/loading system.

6. If clothing becomes contaminated, remove immediately and wash. Store and wash all protective clothing separately from household laundry. Wash in detergent and hot water before reuse. Wear freshly laundered clothes daily.
7. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants.

STORAGE

1. Store the product in original, tightly-closed container and do not allow water to be introduced into this container.
2. **DO NOT** ship or store the product near food, feed, seed or fertilizers.
3. Store the product in a cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.

DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

Booklet

GROUP	14	HERBICIDE
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HEAT® WG

Water soluble granular herbicide for pre-seed, pre-emergent and chemfallow application for control of broadleaf weeds, for pre-harvest weed management in wheat, barley and triticale, and for harvest aid in canola, dry common beans, chickpeas, dry field peas, flax, red lentil varieties, mustard, soybeans and sunflowers

COMMERCIAL (AGRICULTURAL)

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND
PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

ACTIVE INGREDIENT: Saflufenacil..... 70%

Warning: Contains the allergen sulfites

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KEEP OUT OF REACH OF CHILDREN

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT
1-800-454-2673**

NET CONTENTS: 0.25 kg – 100 kg, Bulk

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, ON L5R 4H1
1-877-371-2273

HEAT is a registered trademark of BASF SE, used with permission by BASF Canada Inc.

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1.0 GENERAL INFORMATION

HEAT WG is a water soluble granular herbicide for broadleaf weed control.

HEAT WG is rapidly absorbed by root and foliar uptake; once absorbed it exhibits mobility in plants. **HEAT WG** is a potent inhibitor of protoporphyrinogen oxidase (PPO). Cell membrane damage induced by inhibition of PPO leads to plant death. Susceptible weeds develop injury symptoms within hours of application under active growing conditions; plant death occurs within 3 to 5 days depending upon growing conditions.

HEAT WG is recommended for pre-seed and pre-emergent applications. **HEAT WG** may also be applied in fallow crop lands and post-harvest, and as a pre-harvest weed management treatment and harvest aid in registered crops.

HEAT WG does not control grass weeds. **HEAT WG should always be tank mixed with glyphosate** for broad spectrum weed control.

HEAT WG is a broad spectrum weed resistance management tool for activity on a range of broadleaf weeds.

2.0 PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. **DO NOT** take internally. Harmful if swallowed.
3. **DO NOT** get in eyes or on skin. Causes eye and skin irritation. Avoid inhalation of vapor or spray.
4. Wash exposed areas of skin thoroughly after handling and before eating, drinking or smoking or going to the washroom. Take a shower immediately after work.
5. Wear a long-sleeved shirt, long pants, coveralls, chemical resistant gloves and shoes plus socks during mixing, loading, clean-up and repair. In addition, wear goggles or face shield during mixing/loading. Applicators must wear long-sleeved shirt, long pants, coveralls and shoes plus socks.

Applicators treating corn fields must wear chemical resistant coveralls over long-sleeved shirt, long pants and chemical resistant gloves during mixing, loading, application, clean-up and repair, and additionally, goggles or a face shield during mixing and loading. Applicators performing mixing, loading, and application must use a closed mixing/loading system.

6. If clothing becomes contaminated, remove immediately and wash. Store and wash all protective clothing separately from household laundry. Wash in detergent and hot water before reuse. Wear freshly laundered clothes daily.
7. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

3.0 FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

4.0 ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under Section 17 (Restrictions and Limitations).

5.0 STORAGE

1. Store the product in original, tightly-closed container and do not allow water to be introduced into this container.
2. **DO NOT** ship or store the product near food, feed, seed or fertilizers.
3. Store the product in a cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.

6.0 DISPOSAL

For Recyclable containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

7.0 NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

8.0 REGISTERED CROPS

8.1 PRE-SEED OR PRE-EMERGENT

HEAT WG is registered for use prior to the following crops as a pre-seed, pre-emergent, pre-plant or pre-plant incorporated application.

• Barley
• Bromegrass, seedling (seed production, hay and forage)
• Canary seed
• Chickpeas
• Lentils*
• Oats
• Peas (dried field)
• Wheat (spring, winter and durum)
• Corn
• Soybeans*

* Rate restrictions apply. Refer to crop specific section for details.

8.2 CHEMFALLOW

8.3 HARVEST AID

HEAT WG is registered for use as a desiccant in the following crops:

• Canola (all types)
• Chickpeas
• Dry common beans
• Flax
• Lentils (red lentil varieties only)
• Mustard ¹
• Peas (dried field)
• Soybeans
• Sunflower

¹ All classes, including brown, oriental, canola quality *Brassica juncea*, *Brassica juncea* varieties with the **Clearfield®** trait, and yellow mustard.

8.4 PRE-HARVEST WEED MANAGEMENT

HEAT WG is registered for use as a pre-harvest treatment to improve dry down of volunteer canola (all types including Roundup Ready), common ragweed, Canada fleabane, redroot pigweed and wild buckwheat in the following crops:

• Barley (including spring, winter and malting barley)
• Triticale
• Wheat (including durum, spring and winter wheat)

9.0 DIRECTIONS FOR USE

9.1 CROP USE RATES – HEAT WG

For all **HEAT WG** solo applications applied pre-seed, pre-emergent or as a chemfallow treatment, apply with MERGE® Adjuvant or MSO Concentrate with Leci-Tech at a rate of 0.5 – 1 L/ha.

9.1.1 PRE-SEED OR PRE-EMERGENT

Crop	Use Rate (g/ha)
Lentils*	26
Soybean**	26 – 36
Barley	26 – 71
Bromegrass, seedling (seed production, hay and forage) ***	26 – 71
Canary seed	26 – 71
Chickpea Kabuli	26 – 71
Corn (field, sweet****)	26 – 71
Oats	26 – 71
Peas (dried field)	26 – 71
Wheat (spring, durum, winter)	26 – 71
Chemfallow	26 – 71
* Rate restrictions apply. Do not use rates higher than 26 g/ha or injury could result. See crop specific section for additional details.	
** Rate restrictions apply. Do not use rates higher than 36 g/ha or injury could result. See crop specific section for additional details. Some soybeans cultivars may be more sensitive to saflufenacil and injury might occur.	
*** HEAT WG should not come into contact with the seed. Ensure adequate soil coverage for pre-emergent applications to bromegrass.	
**** Some sweet corn hybrids may be more sensitive to saflufenacil and injury might occur.	

9.1.2 CHEMFALLOW

Crop	Use Rate (g/ha)	Application Timing
Chemfallow	26 – 71	Post-emergence in fallow croplands and post-harvest.

9.1.3 HARVEST AID

HEAT WG may be used as a harvest aid to accelerate the rate of crop dry down and improve crop uniformity to facilitate direct combining. Early application may result in yield loss.

The dry down of crops will be best under favorable environmental conditions like warm temperatures, good moisture conditions and low humidity.

Harvesting of crops can be done when plant material is dry and seed moisture level allows efficient harvesting. Under ideal conditions, harvest can normally commence within 7-14 days after desiccation when applied at the appropriate crop stage recommendation. Adverse weather conditions such as rainfall, cool temperatures and high humidity may slow the plant desiccation and keep seed moisture levels high which can delay commencement of harvest after the **HEAT WG** application. Consult your BASF representative for further information on the timing of harvest after a pre-harvest application.

HEAT WG when used as harvest aid will not affect the seed germination if applied according to label recommendations.

Crop	Use Rate (g/ha)	Application Timing
Canola (all types), chickpeas, dry common beans, flax, lentils ² , mustard ¹ , peas (dried field), soybeans, sunflower	36 – 71	Harvest aid

¹ All classes, including brown, oriental; canola quality *Brassica juncea*; *Brassica juncea* varieties with the **Clearfield** trait; and yellow mustard.

² Apply only to red lentil varieties.

Aerial Application

HEAT WG can be used for aerial application when used as a harvest aid or a pre-harvest weed management (see Section 9.1.4) in the registered crops.

Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Ensure thorough coverage of foliage. Consult nozzle manufacturer’s recommendation for spray pressures for specific nozzles.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Do not apply during periods of dead calm.

Observe buffer zones specified under Section 16 (Restrictions and Limitations)

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, a long-sleeved shirt, long pants, coveralls, shoes plus socks, and goggles or face shield during mixing/loading, cleanup and repair. Applicators must wear long-sleeved shirt, long pants, and shoes plus socks. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

HARVEST AID - CROP SPECIFIC RECOMMENDATIONS STAND-ALONE

See Section 9.1.3, above, for further use instructions.

9.1.3.1 DESICCATION - DRY COMMON BEANS / SOYBEANS

Rate	36 – 71 g/ha of HEAT WG + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha or MSO Concentrate at a rate of 1 L/ha.
Application Timing	Apply when stems are green to brown in colour and pods are mature (yellow – brown) and 80 – 90% of the original leaves have dropped.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	Do not graze or feed treated hay or straw to livestock.

9.1.3.2 DESICCATION - CHICKPEAS

Rate	36 – 71 g/ha of HEAT WG + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha or MSO Concentrate at a rate of 1 L/ha.

Application Timing	For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green. For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Dry down is less complete in Kabuli type due to its thick pod wall.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	Do not graze or feed treated hay or straw to livestock.

9.1.3.3 DESICCATION – RED LENTIL VARIETIES

Rate	36 – 71 g/ha of HEAT WG + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha or MSO Concentrate at a rate of 1 L/ha.
Application Timing	Apply when lowermost pods (bottom 15%) are brown and rattle when shaken.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	Apply only to red lentil varieties. Do not graze or feed treated hay or straw to livestock.

9.1.3.4 DESICCATION – FIELD PEAS

Rate	36 – 71 g/ha of HEAT WG + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha or MSO Concentrate at a rate of 1 L/ha.
Application Timing	Apply when the majority of pods are brown (70-80%).
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	Desiccation treated pea vines may be grazed or fed to livestock.

9.1.3.5 DESICCATION – SUNFLOWER

Rate	36 – 71 g/ha of HEAT WG + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha or MSO Concentrate at a rate of 1 L/ha.
Application Timing	Apply when the backs of the heads and bracts are turning yellow, and seed moisture is 20 – 30%.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.

9.1.3.6 DESICCATION – CANOLA (ALL TYPES) AND MUSTARD¹

Rate	36 – 71 g/ha of HEAT WG + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha or MSO Concentrate at a rate of 1 L/ha.
Application Timing	Apply when 60 – 75% of seeds have changed colour.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	It is recommended that the application of HEAT WG as a desiccant in canola and mustard be made to shatter resistant varieties.

¹ All classes, including brown, oriental; canola quality *Brassica juncea*; *Brassica juncea* varieties with the **Clearfield** trait; and yellow mustard.

9.1.3.7 DESICCATION – FLAX

Rate	36 – 71 g/ha of HEAT WG + adjuvant
Water Volume	200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha or MSO Concentrate at a rate of 1 L/ha.
Application Timing	Apply when 75% of bolls have turned colour.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.

9.1.4 PRE-HARVEST WEED MANAGEMENT

HEAT WG may be used as a pre-harvest treatment in wheat (including durum, spring, and winter wheat), barley (including spring, winter, and malting barley) and triticale to improve dry down of volunteer canola (all types including Roundup Ready), common ragweed, Canada fleabane, redroot pigweed and wild buckwheat and to facilitate direct combining. Early application may result in yield loss.

HEAT WG when used alone as a pre-harvest treatment will not affect the seed germination if applied according to label recommendations.

WHEAT, BARLEY AND TRITICALE

Rate	36 – 71 g/ha of HEAT WG + adjuvant
Water Volume	100 – 200 L/ha ground; 50 L/ha aerial
Surfactant/Adjuvant	Add MERGE Adjuvant at a rate of 0.5 – 1 L/ha or MSO Concentrate at a rate of 1 L/ha.
Application Timing	Hard dough stage; a thumbnail impression remains on seed; less than 30% moisture.
Weeds Controlled	Improved dry down of volunteer canola (all types including Roundup Ready), common ragweed, Canada fleabane, redroot pigweed and wild buckwheat.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Directions for Use – Aerial	For aerial application use a minimum water volume of 50 L/ha. Please see above for aerial application use and operator precautions.
Remarks	Treated barley, wheat and triticale straw may be grazed or fed to livestock. Use higher water volume for dense crop stands and higher weed pressure.

9.2 WEEDS CONTROLLED

HEAT WG can be applied pre-seed or pre-emergence to the crop to control weeds listed below.

HEAT WG should always be applied in combination with glyphosate for broad spectrum weed control including grassy weeds.

Weeds Controlled For Rapid Burn down (Pre-seed or Pre-emergent)

Use Rate: 26 g/ha

Weed	Maximum Weed Stage
Kochia	15 cm
Canada fleabane	8 leaf

Weed	Maximum Weed Stage
Cleavers	4-whorl stage
Lamb's-quarters	8 leaf
Narrow-leaved hawk's beard	8 cm
Redroot pigweed	8 leaf
Round-leaved mallow	8 leaf
Stinkweed	8 leaf
Volunteer canola (all types including Roundup Ready®)	8 leaf
Wild buckwheat	8 leaf
Wild mustard	8 leaf

Use Rate: 36 g/ha

HEAT WG applied pre-seed or pre-emergence at 36 g/ha will provide rapid burndown control of the following weeds in addition to those listed above:

Weed	Maximum Weed Stage
Common ragweed	8 leaf
Giant ragweed	8 leaf
Lady's-thumb	6 leaf
Perennial sow-thistle (top growth burndown control)	8 leaf
Prickly lettuce (top growth only)	9 leaf
Shepherd's-purse	Full flower

**For Rapid Burndown and Suppression of Secondary Weed Flushes
(Pre-seed or Pre-emergent)**

Use Rate: 52 - 71 g/ha

Weed	Maximum Weed Stage
Redroot pigweed	8 leaf
Stinkweed	8 leaf
Volunteer canola (all types including Roundup Ready)	8 leaf
Wild buckwheat	8 leaf
Wild mustard	8 leaf

9.3 TANK MIXES – PRE-SEED, PRE-EMERGENT AND CHEMFALLOW

9.3.1 HEAT WG + GLYPHOSATE

For broad spectrum weed control, **HEAT WG** should always be tank mixed with glyphosate present as isopropylamine salt, di-ammonium salt or potassium salt. **HEAT WG** is compatible with all liquid glyphosate formulations, in which glyphosate is present as isopropylamine salt, di-ammonium salt or potassium salt, as a tank-mix partner.

Tank mixing **HEAT WG** with glyphosate will provide control of all weeds controlled by glyphosate in addition to the broadleaf weeds listed on **HEAT WG** label. Consult the glyphosate label for a complete list of weeds controlled by glyphosate.

Tank mixing is a recognized strategy to delay herbicide resistance as well as improve the weed spectrum controlled. See Section 17.

TANK MIX CROP USE RATES

HEAT WG + Glyphosate Use Rate (360 g/L equivalent) 1.25 – 2.5 L/ha

Crop	HEAT WG Use Rate (g/ha)
Lentils*	26
Soybean**	26 - 36
Barley	26 - 71
Bromegrass, seedling (seed production, hay and forage) ***	26 - 71
Canary seed	26 - 71
Chickpea Kabuli	26 - 71
Corn (field, sweet****)	26 - 71
Oats	26 - 71
Peas (dried field)	26 - 71
Wheat (spring, durum, winter)	26 - 71
Chemfallow	26 - 71
* Rate restrictions apply. Do not use rates higher than 26 g/ha or injury could result. See crop specific section for additional details.	
** Rate restrictions apply. Do not use rates higher than 36 g/ha or injury could result. See crop specific section for additional details. Some soybeans cultivars may be more sensitive to saflufenacil and injury might occur.	
*** HEAT WG should not come into contact with the seed. Ensure adequate soil coverage for pre-emergent applications to bromegrass.	
**** Some sweet corn hybrids may be more sensitive to saflufenacil and injury might occur.	

For tank mix applications of **HEAT WG** with glyphosate, apply with either MERGE Adjuvant, MSO Concentrate with Leci-Tech or Amigo® at a rate of 0.5 – 1 L/ha.

Always refer to the tank mix partner herbicide label for precautions, use instructions and crop rotation restrictions. Do not apply tank mix combinations by air.

When a tank mix is used, consult the labels of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarse spray (ASAE) category indicated on the labels for those tank mix partners.

TANK MIX WEEDS CONTROLLED

Rapid Burn Down (Pre-seed or Pre-emergent)

HEAT WG when tank mixed with glyphosate will provide rapid burn down of the following weeds in addition to weeds listed for treatment of **HEAT WG**.

Use Rate: 26 g/ha

Weed	Maximum Weed Stage
Dandelion (top growth burndown control only)	15 cm
Flixweed	8 leaf

9.4 CROP SPECIFIC RECOMMENDATIONS

9.4.1 CHICKPEAS AND PEAS (dried field)

Timing	Pre-seed or Pre-emergent
Rate	26 – 71 g/ha of HEAT WG + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant, MSO Concentrate or Amigo at a rate of 0.5 – 1 L/ha.
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT WG . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT WG .

9.4.2 CEREALS – BARLEY, CANARY SEED, OATS AND WHEAT (spring, durum, winter)

Timing	Pre-seed or Pre-emergent
Rate	26 – 71 g/ha of HEAT WG + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant, MSO Concentrate or Amigo at a rate of 0.5 – 1 L/ha.

Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT WG . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT WG .
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9.4.3 SEEDLING BROMEGRASS GROWN FOR SEED PRODUCTION, HAY AND FORAGE

Timing	Pre-seed or Pre-emergent
Rate	26 – 71 g/ha of HEAT WG + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant, MSO Concentrate or Amigo at a rate of 0.5 – 1 L/ha.
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT WG . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT WG .
Remarks	HEAT WG should not come into contact with the seed. Ensure adequate soil coverage for pre-emergent applications to bromegrass.

9.4.4 SOYBEANS

Timing	Pre-seed or Pre-emergent
Rate	26 – 36 g/ha of HEAT WG + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant, MSO Concentrate or Amigo at a rate of 0.5 – 1 L/ha.
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT WG . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT WG .
Remarks	Some soybean cultivars may be more sensitive to saflufenacil and injury might occur. When applying 36 g/ha pre-emergent to soybeans, DO NOT apply to coarse textured soils with less than 2% organic matter. When applying pre-emergent to soybeans, apply prior to when the soybeans cause the ground to crack and no more than 3 days after planting.

9.4.5 LENTILS (including Clearfield® Lentils)

Timing	Pre-seed or Pre-emergent
Rate	26 g/ha of HEAT WG + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant

Water Volume	50 - 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant, MSO Concentrate or Amigo at a rate of 0.5 – 1 L/ha.
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT WG . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT WG .
Remarks	Rainfall shortly after product application can result in slight injury to the crop. Lentils will be more susceptible to injury on coarse texture and low organic matter soils. Injury will usually appear as leaf tissue necrosis on the outer edges of the leaves. Lentils will grow out of injury symptoms, and yield will not be impacted at recommended rates. The user should contact BASF before applying any other soil applied herbicide with, before, or after applications of HEAT WG + glyphosate. The addition of other soil applied herbicides may increase the sensitivity of lentils to HEAT WG and injury may result.

9.4.6 CORN (field, sweet)

Timing	Pre-seed or Pre-emergent
Rate	26 – 71 g/ha of HEAT WG + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant, MSO Concentrate or Amigo at a rate of 0.5 – 1 L/ha.
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT WG . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT WG .
Remarks	Some sweet corn hybrids may be more sensitive to saflufenacil and injury might occur.

9.5 CHEMFALLOW

Timing	Chemfallow
Rate	26 – 71 g/ha of HEAT WG + 1.25 – 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	50 – 100 L/ha
Surfactant/Adjuvant	Add MERGE Adjuvant, MSO Concentrate or Amigo at a rate of 0.5 – 1 L/ha.
Weeds Controlled	See Section 9.2 for a complete list of weeds controlled by HEAT WG . Refer to the glyphosate label for weeds controlled in addition to those controlled by HEAT WG .
Remarks	Apply to actively growing weeds less than 15 cm in height. Better coverage of the product results in enhanced control of weeds. For application to larger weeds or dense weed infestations, use minimum water volume of 100 L per hectare.

10.0 HARVEST AID – CROP SPECIFIC RECOMMENDATIONS TANK-MIX

HEAT WG may be used as a harvest aid to accelerate the rate of crop dry down and improve crop uniformity to facilitate direct combining. Early application may result in yield loss.

The dry down of crops will be best under favorable environmental conditions like warm temperatures, good moisture conditions and low humidity.

Harvesting of crops can be done when plant material is dry and seed moisture level allows efficient harvesting. Under ideal conditions, harvest can normally commence within 7-14 days after desiccation when applied at the appropriate crop stage recommendation. Adverse weather conditions such as rainfall, cool temperatures and high humidity may slow the plant desiccation and keep seed moisture levels high which can delay commencement of harvest after the **HEAT WG** application. Consult your BASF representative for further information on the timing of harvest after a pre-harvest application.

HEAT WG may be applied in tank mix with glyphosate for additional pre-harvest weed control.

The tank mix with glyphosate may affect the seed germination. DO NOT tank mix with glyphosate when harvested grain is to be used for seed.

10.1 DESICCATION – DRY COMMON BEANS*/ SOYBEANS

Timing	Desiccation of DRY COMMON BEANS* / SOYBEANS
Rate	36 – 71 g/ha of HEAT WG + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant or MSO Concentrate at a rate of 0.5 – 1 L/ha.
Remarks	*Consult glyphosate label or BASF representative for information on the use on specific varieties of dry common beans.
Application Timing	Apply when stems are green to brown in colour and pods are mature (yellow – brown) and 80 – 90% of the original leaves have dropped.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	Do not graze or feed treated hay or straw to livestock. See Section 10.0 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.

10.2 DESICCATION – CHICKPEAS

Timing	Desiccation of CHICKPEAS
Rate	36 – 71 g/ha of HEAT WG + 900 g a.e/ha glyphosate (1.67 L/ha of 540 g/L glyphosate formulation) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant or MSO Concentrate at a rate of 0.5 – 1 L/ha.
Application Timing	For Desi type, apply at the time swathng would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green. For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Dry down is less complete in Kabuli type due to its thick pod wall.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	Do not graze or feed treated hay or straw to livestock. See Section 10.0 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes. Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.

10.3 DESICCATION – RED LENTIL VARIETIES

Timing	Desiccation of RED LENTIL VARIETIES
Rate	36 – 71 g/ha of HEAT WG + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant or MSO Concentrate at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when lowermost pods (bottom 15%) are brown and rattle when shaken.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	Apply only to red lentil varieties. Do not graze or feed treated hay or straw to livestock. See Section 10.0 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.

10.4 DESICCATION – FIELD PEAS

Timing	Desiccation of FIELD PEAS
Rate	36 – 71 g/ha of HEAT WG + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant or MSO Concentrate at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when the majority of pods are brown (70-80%).
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	See Section 10.0 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.

10.5 DESICCATION – CANOLA (ALL TYPES) AND MUSTARD¹

Timing	Desiccation of CANOLA and MUSTARD
Rate	36 – 71 g/ha of HEAT WG + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant or MSO Concentrate at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when 60 – 75% of seeds have changed colour.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	It is recommended that the application of HEAT WG as a desiccant in canola and mustard be made to shatter resistant varieties. See Section 10.0 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.

¹ All classes, including brown, oriental, canola quality *Brassica juncea*, *Brassica juncea* varieties with the **Clearfield** trait, and yellow mustard.

10.6 DESICCATION – FLAX

Timing	Desiccation of FLAX
Rate	36 – 71 g/ha of HEAT WG + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant or MSO Concentrate at a rate of 0.5 – 1 L/ha.
Application Timing	Apply when 75% of bolls have turned colour.

Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	See Section 10.0 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes.

11.0 PRE-HARVEST WEED MANAGEMENT – TANK MIX CROP SPECIFIC RECOMMENDATIONS

HEAT WG may be used as a pre-harvest treatment in wheat (including durum, spring and winter wheat), barley (including spring, winter and malting barley) and triticale to improve dry down of volunteer canola (all types including Roundup Ready), common ragweed, Canada fleabane, redroot pigweed and wild buckwheat. Tank mixing **HEAT WG** with glyphosate will provide additional pre-harvest weed management to the crop dry down provided by glyphosate.

The tank mix with glyphosate may affect the seed germination. Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.

WHEAT AND BARLEY

Rate	36 – 71 g/ha of HEAT WG + 2.5 L/ha of glyphosate (360 g/L equivalent) + adjuvant
Water Volume	100 – 200 L/ha ground
Surfactant/Adjuvant	Add MERGE Adjuvant or MSO Concentrate at a rate of 0.5 – 1 L/ha.
Application Timing	Hard dough stage; a thumbnail impression remains on seed; less than 30% moisture.
Weeds Controlled	Improved dry down of volunteer canola (all types including Roundup Ready), common ragweed, Canada fleabane, redroot pigweed and wild buckwheat. Consult the glyphosate label regarding additional pre-harvest weed control.
Directions for Use – Ground	Ground application may be done with a standard boom sprayer.
Remarks	See Section 10.0 for detailed use pattern. Consult the label of the tank mix partner product for further use instructions, precautions and restrictions. The most restrictive labeling applies to tank mixes. Use higher water volume for dense crop stands and higher weed pressure. Tank mixing with glyphosate is not recommended when harvested grain is to be used for seed.

12.0 MIXING INSTRUCTIONS

1. When using **HEAT WG**, always start with a clean sprayer. Thoroughly clean the sprayer by flushing the system with water containing detergent. Refer to previously applied product labels for specific cleaning instructions.

2. Fill clean spray tank half full with clean water. Start agitation system.
3. Using a calibrated measuring device, add the correct amount of **HEAT WG**. Continue to agitate.
4. **For tank mix with glyphosate**, add **HEAT WG** followed by recommended amount of glyphosate.
5. If recommended, add the correct amount of MERGE Adjuvant, MSO Concentrate with Leci-Tech or Amigo to the tank last.
6. Continue agitation while filling the remainder of the tank with water necessary to fill the spray tank.
7. Continue to agitate or run the by-pass system.
8. After any break in spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to remix the spray materials. Do not allow the mixture to sit overnight.
9. If an oil film starts to build up in the tank, drain it and clean the tank with strong detergent solution.
10. Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent.

Dispose of all rinsings in accordance with provincial regulations.

13.0 PRE-HARVEST INTERVAL (PHI)

The following pre-harvest intervals should be observed for respective crops.

Crop	Pre-Harvest Interval (PHI) in days
Barley	60
Canary seed	60
Chickpea	60
Corn (field, sweet)	60
Lentils	60
Oats	60
Peas (dried field)	60
Soybean	60
Wheat (spring, winter, durum)	60

14.0 PRE-HARVEST INTERVAL (PHI) – HARVEST AID

The following pre-harvest intervals should be observed for respective crops when **HEAT WG** is used as a harvest aid.

Crop	Pre-Harvest Interval (PHI) in days
• Barley	3
• Canola	3
• Chickpeas	2
• Dry common beans	2
• Flax	3
• Lentils	3
• Mustard	3
• Peas (dried field)	3
• Soybeans	3
• Sunflower	7
• Triticale	3
• Wheat	3

15.0 FOLLOW CROPPING

The crops listed can be safely grown after a spring application of **HEAT WG**.

Plant Back Crops In case of crop failure, the following crops can be planted in the same season ¹	Rotational Crops The following crops can be planted anytime in the following season
<p style="text-align: center;">Barley Canary seed Chickpeas Corn (field and sweet) Lentils* Oats Dry field peas Soybean* Wheat (spring, winter & durum)</p>	<p style="text-align: center;">Barley Canary seed Canola Chickpeas Corn (field and sweet) Dry common beans Flax Lentils Mustard Oats Dry field peas Soybean Triticale Wheat (spring, winter & durum)</p>
<p>* Rate restrictions apply. Lentils and soybeans can only be grown as plant back crops provided that a maximum product use rate of 26 and 36 g/ha, respectively, was used in the previous crop.</p>	

¹ A second application of **HEAT WG** cannot be made in the rescue crop.

The crops listed below can be safely grown after a fall application of **HEAT WG**.

Rotational crops that can be planted in the following spring after application	Rotational crops that can be planted in the second spring after application
Barley Canary seed Canola Chickpeas Corn (field and sweet) Flax Lentils Mustard Oats Dry field peas Soybeans Wheat (spring, winter, and durum)	All crops

16.0 SPRAYING INSTRUCTIONS

Water volume and spray pressure

Conventional ground application

Use sprayers equipped with standard flat nozzles. The use of 80°-110° stainless steel flat fan nozzle is recommended for optimum spray coverage with nozzles tilted 45° forward to ensure better coverage.

Thoroughly clean all screens to prevent nozzle clogging. Apply in a water volume of 50-100 L/ha and at a pressure of 240 kPa. For applications to dense weed infestations and thick canopies, use a higher water volume at pressures of 275 kPa.

Better coverage of the product results in enhanced control of weeds.

17.0 RESTRICTIONS AND LIMITATIONS

1. Wash sprayer thoroughly after use to avoid damage to the next crop sprayed.
2. DO NOT APPLY BY AIR, unless specified otherwise.
3. DO NOT enter or allow worker entry into treated areas for 12 hours after application.
4. Field corn – Corn forage and silage can be harvested, used as feed or grazed 60 or more days after application of **HEAT WG**.
5. Legume forage (chickpeas, field peas and lentils) may be used as feed or grazed 60 or more days after application of **HEAT WG**. Desiccation treated pea vines may be grazed or fed to livestock.
6. Small grains (wheat, barley and oats) – forage and hay can be used as feed or grazed 30 or more days after application of **HEAT WG**. Pre-harvest treated barley, wheat and triticale straw may be grazed or fed to livestock.

7. Soybeans may be used as feed or grazed 60 or more days after application of **HEAT WG**.
8. Soybeans, chickpeas and dry common beans – Do not graze or feed treated hay or straw to livestock when **HEAT WG** is used as a harvest aid.
9. Grasses – forage and hay can be used as feed or grazed immediately after application of **HEAT WG**.
10. DO NOT apply directly to water. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
11. To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.
12. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.
13. In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact BASF at 1-877-371-2273 or www.agsolutions.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by BASF.

Buffer zones

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands).

Method of application	Crop	Buffer zones (metres) required for the protection of terrestrial habitats	
Field sprayer*	Lentils (pre-seed or pre-emergent)	3	
	Soybean (pre-seed or pre-emergent)	4	
	Barley, bromegrass, canary seed, chickpea, corn, oats, dried field peas, wheat (pre-seed or pre-emergent) Chemfallow Canola, flax, lentil, chickpea, mustard, soybean, dried field peas, sunflower, dry common beans, wheat, barley, triticale (harvest aid)	10	
Aerial	Canola, flax, lentil, chickpea, mustard, soybean, dried field peas, sunflower, dry common bean, wheat, barley, triticale (harvest aid)	Fixed wing	175
		Rotary wing	150

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labeled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labeled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarse spray (ASAE) category indicated on the labels for those tank mix partners.

18.0 RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **HEAT WG** is a Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to **HEAT WG** and other Group 14 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **HEAT WG** or other Group 14 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.

- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact BASF at 1-877-371-2273 or at www.agsolutions.ca.

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Safety Data Sheet

HEAT WG

Revision date : 2014/06/03
Version: 2.0

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(30497792/SDS_CPA_CA/EN)

1. Product and Company Identification

Company

BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1
CANADA

24 Hour Emergency Response Information

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

Molecular formula: C17 H17 Cl F4 N4 O5 S
PCP # 29368
Synonyms: Saflufenacil

2. Hazards Identification

Emergency overview

WARNING:

Contains the allergen sulfite(s).
KEEP OUT OF REACH OF CHILDREN.
HARMFUL IF SWALLOWED.
Avoid contact with skin and eyes.
May cause slight irritation to the eyes.
May cause slight irritation to the skin.
Avoid inhalation of dusts/mists/vapours.

State of matter: solid
Colour: light brown
Odour: odourless

Potential health effects

Acute toxicity:

Slightly toxic after single ingestion. Slightly toxic after short-term skin contact. Relatively nontoxic after short-term inhalation.

Irritation / corrosion:

May cause slight irritation to the eyes. May cause slight irritation to the skin.

Sensitization:

Skin sensitizing effects were not observed in animal studies.

Chronic toxicity:

Carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

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Repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. No substance-specific organotoxicity was observed after repeated administration to animals.

Reproductive toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Genotoxicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Signs and symptoms of overexposure:

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

Potential environmental effects

Aquatic toxicity:

There is a high probability that the product is not acutely harmful to fish. There is a high probability that the product is not acutely harmful to aquatic invertebrates. Very toxic (acute effect) to aquatic plants.

Terrestrial toxicity:

With high probability not acutely harmful to terrestrial organisms.

3. Composition / Information on Ingredients

Not WHMIS controlled.

4. First-Aid Measures

General advice:

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. If not breathing, give artificial respiration.

If on skin:

Remove contaminated clothing. Rinse skin immediately with plenty of water for 15 - 20 minutes.

If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

If swallowed:

Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting unless told to by a poison control center or doctor. Do not give solids or liquids.

Note to physician

Treatment:

Treat according to symptoms (decontamination, vital functions), no known specific antidote.

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5. Fire-Fighting Measures

Flash point:	not applicable
Lower explosion limit:	For solids not relevant for classification and labelling.
Upper explosion limit:	For solids not relevant for classification and labelling.
Flammability:	not highly flammable
Self-ignition temperature:	371 °C (Directive 92/69/EEC, A.16)

Suitable extinguishing media:

water spray, foam, dry powder

Unsuitable extinguishing media for safety reasons:

water jet, carbon dioxide

Hazards during fire-fighting:

carbon monoxide, carbon dioxide, ammonia, Hydrogen chloride, nitrogen oxides, sulfur oxides, organochloric compounds

The substances/groups of substances mentioned can be released in case of fire.

Protective equipment for fire-fighting:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

In case of fire and/or explosion do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions:

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Cleanup:

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

Handling

General advice:

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

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Protection against fire and explosion:

Dust can form an explosive mixture with air. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy. Avoid dust formation.

Storage

General advice:

Protect against moisture. Keep away from heat. Protect from direct sunlight.

Storage incompatibility:

General advice: Segregate from foods and animal feeds.

Temperature tolerance

Protect from temperatures above: 50 °C

Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

8. Exposure Controls and Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Keep away from food, drink and animal feeding stuffs. Store work clothing separately.

9. Physical and Chemical Properties

Form:	solid, granules
Odour:	odourless
Odour threshold:	No data available.
Colour:	light brown
pH value:	approx. 4 - 6 (10 g/l, 25 °C)
Density:	approx. 1.61 g/cm ³ (20 °C)

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Bulk density:	540 - 600 kg/m ³	(20 °C, 1,013 hPa)
Vapour density:		not determined
Viscosity, dynamic:		not applicable
Solubility in water:		dispersible
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Dust explosivity characteristics:

Kst: 139 m.bar/s
Pmax = 7.35 bar
ASTM standard method E1226

Dust explosion class:

Dust explosion class 1 (Kst-value >0 up to 200 bar m s⁻¹) (St 1)

Conditions to avoid:

Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. This product may form an explosive mixture if: 1. the dust is suspended in the atmosphere as a dust cloud AND 2. the concentration of the dust is above the lower explosion limit (LEL) AND 3. the limiting oxygen concentration (LOC) is exceeded.

Substances to avoid:

strong oxidizing agents, strong acids, strong bases

Hazardous reactions:

The product is chemically stable.
No hazardous reactions if stored and handled as prescribed/indicated.

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Oxidizing properties:

not fire-propagating

11. Toxicological information

Acute toxicity

Oral:

Type of value: LD50
Species: rat
Value: > 2,000 mg/kg

Inhalation:

Type of value: LC50
Value: > 5 mg/l
Exposure time: 4 h

Dermal:

Type of value: LD50
Species: rat
Value: > 2,000 mg/kg

Irritation / corrosion

Skin:

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Species: rabbit
Result: non-irritant

Eye:

Species: rabbit
Result: non-irritant

Sensitization:

modified Buehler test
Species: guinea pig
Result: Skin sensitizing effects were not observed in animal studies.

Genetic toxicity

Information on: Saflufenacil
Results from a number of genotoxicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is genotoxic.

Carcinogenicity

Information on: Saflufenacil
Not carcinogenic.

Reproductive toxicity

Information on: Saflufenacil
The results of animal studies gave no indication of a fertility impairing effect.

Development:

Information on: Saflufenacil
Indications of possible developmental toxicity/teratogenicity were seen in animal studies.

Other Information:

Misuse can be harmful to health.

12. Ecological Information

Fish

Acute:
Oncorhynchus mykiss/LC50 (96 h): > 100 mg/l

Aquatic invertebrates

Acute:
static
Daphnia magna (48 h): > 100 mg/l

Aquatic plants

Toxicity to aquatic plants:
green algae/EC50 (72 h): 0.1157 mg/l

Environmental mobility:

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Information on: saflufenacil

Assessment transport between environmental compartments:

Following exposure to soil, the product trickles away and can - dependant on degradation - be transported to deeper soil areas with larger water loads.

Other adverse effects:

Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:

See product label for disposal and recycling instructions.

Container disposal:

Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

14. Transport Information

Land transport

TDG

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Hazard class:	9
Packing group:	III
ID number:	UN 3077
Hazard label:	9, EHSM
Marine pollutant:	YES
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains SAFLUFENACIL)

Air transport

IATA/ICAO

Hazard class:	9
Packing group:	III
ID number:	UN 3077
Hazard label:	9, EHSM
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains SAFLUFENACIL)

15. Regulatory Information

Federal Regulations

Registration status:

Chemical DSL, CA released; restriction on quantity / not listed

Crop Protection DSL, CA released / exempt

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WHMIS does not apply to this product.

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

16. Other Information

Recommended use: herbicide

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

SDS Prepared by:

BASF NA Product Regulations

BASF HOTLINE (800) 454 – COPE (2673)

SDS Prepared on: 2014/06/03

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

GROUP	3	4	7	12	FUNGICIDES
GROUP	4				INSECTICIDE

HELIX® VIBRANCE®

INSECTICIDE AND FUNGICIDE SEED TREATMENT

SUSPENSION

AGRICULTURAL

A liquid seed treatment to control diseases and insect pests in labeled crops.

ACTIVE INGREDIENTS:

Thiamethoxam	269 g/L
Difenoconazole	16 g/L
Metalaxyl-M and S-isomer	5 g/L
Sedaxane	3.4 g/L
Fludioxonil	1.7 g/L

Contains 1,2-benzisothiazolin-3-one at 0.048% and 2-bromo-2-nitropropane-1,3-diol at 0.021% as preservatives.

READ THE LABEL AND BROCHURE BEFORE USING

CAUTION



POISON

KEEP OUT OF THE REACH OF CHILDREN AND ANIMALS AND PREVENT ACCESS BY UNAUTHORIZED PERSONNEL

REGISTRATION NUMBER: **31454**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **1 L to 1050 L**

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

For use with commercial seed treaters (facilities and mobile treaters) with closed transfer systems only. No open transfer of HELIX® VIBRANCE® is permitted. All seed treated with this product must be conspicuously coloured at the time of treatment.

Label

1.0 NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

2.0 FIRST AID

IN CASE OF POISONING, IMMEDIATELY contact a physician or a poison control centre. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

3.0 TOXICOLOGICAL INFORMATION

There is no specific antidote for this product if ingested. Treat symptomatically.

4.0 PRECAUTIONS

Safety Precautions

1. KEEP OUT OF THE REACH OF CHILDREN and DOMESTIC ANIMALS and PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. For use with commercial seed treaters (facilities and mobile treaters).
2. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke during handling. At the beginning of breaks, remove protective clothing. At the end of work shifts, remove protective clothing and wash thoroughly.
3. Harmful if swallowed. Avoid inhalation of vapours or treated seed dust. Wash hands and face after handling and before eating, smoking, drinking or using the toilet.
4. Store the product in a well-ventilated, secure area. Avoid contamination of feed and foodstuffs.
5. Do not graze or feed livestock on treated areas.
6. Do not plant any crop other than those on the HELIX VIBRANCE or VIBRANCE 500FS

Seed Treatment label within 60 days to fields in which seed treated with HELIX VIBRANCE were planted.

7. Clean up spilled material, equipment and work area as soon as possible after use.
8. Do not apply in a way that this product will contact workers or other persons, either directly or through drift. Only handlers (mixers, loaders and applicators) wearing personal protective equipment may be in the area during application.
9. If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

5.0 PERSONAL PROTECTIVE EQUIPMENT

Treat seed in a well-ventilated area. Workers involved in clean-up of seed-treating equipment must wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, socks and chemical-resistant footwear. Workers involved in treating seeds or repair or maintenance of seed treating equipment must wear coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, socks and chemical-resistant footwear. Workers involved in bagging, sewing, and stacking bags of treated seed, or when transferring seed to a storage bin must wear coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, a NIOSH-approved dust mask, and socks and shoes. Forklift operators must wear coveralls over long-sleeved shirt, long pants, chemical-resistant gloves, and socks and shoes. For good hygiene practice, it is also recommended to wear a NIOSH-approved dust mask during all job activities.

Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Wash splashes from skin IMMEDIATELY with plenty of water. Remove PPE immediately after handling this product. Wash the outside of gloves with soap and water before removing. As soon as possible, wash thoroughly and change into clean clothing. After spraying, wash hands and shower thoroughly with soap and water.

Heavily contaminated or drenched clothing and other absorbent materials contaminated with this product should be discarded. Do not reuse them.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Wear freshly laundered clothes daily.

6.0 ENVIRONMENTAL PRECAUTIONS

1. Do not apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.
2. Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
3. TOXIC to aquatic organisms.
4. Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected.
5. Treated seed is TOXIC to birds and small wild mammals. Any spilled or exposed seeds must

be incorporated into the soil or otherwise cleaned-up from the soil or other surfaces.

7.0 USE RESTRICTIONS

1. Treated seed must not be used for food, feed or oil processing.
2. Not for use in hopper-box, planter-box, slurry-box or other non-commercial seed treatment applications (e.g. on-farm treaters).
3. All bags containing treated seed for sale or use in Canada must be labeled or tagged as follows: **“This seed has been treated with the insecticide, thiamethoxam and fungicides, difenoconazole, metalaxyl-M and S-isomer, fludioxonil and sedaxane. Wear coveralls over a long-sleeved shirt, long pants, socks, shoes, and chemical-resistant gloves when handling treated seeds, planting, and during maintenance, clean-up, and repair. In addition, wear a properly fit-tested NIOSH-approved dust mask rated N95 or higher when handling treated seeds (includes loading and unloading). Use only closed-cab planting equipment. Gloves and a dust mask do not need to be worn when inside the closed cab. Keep out of reach of children and animals. Do not use for food, feed or oil processing. Store away from food and feed. Treated seed is TOXIC to birds. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.”**

8.0 STORAGE

To prevent contamination, store this product away from food or feed.

9.0 DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

For Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For Returnable Containers

Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

For Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with

provincial requirements.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

HELIX® and VIBRANCE® are trademarks of a Syngenta Group Company.

GROUP	3	4	7	12	FUNGICIDES
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Pamphlet

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Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

For Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

10.0 PRODUCT INFORMATION

HELIX VIBRANCE contains an insecticide, thiamethoxam, and four fungicides, difenoconazole, metalaxyl-M and S-isomer, fludioxonil and sedaxane. This product controls a broad spectrum of seed and soil-borne diseases as well as early-season control of flea beetles.

10.1 Integrated Pest Management for Canola

Control of diseases and/or flea beetles can be reduced significantly if:

- Canola is seeded into the same field more than once every three years
- Seeding depths are excessive (>4 cm)
- Emerging seedlings are subjected to poor growing conditions
- Canola is planted into fields with reduced tillage practices

Canola fields should be monitored on a regular basis after emergence. Flea beetles often migrate from field edges inward. Field scouting will determine if a foliar insecticide application is warranted and whether it will be required over the entire field or on the headlands only.

Foliar insecticide application should be considered if:

- Flea beetle damage has reached or is approaching the economic threshold of 25% leaf area damage on the cotyledons or first true leaves.
- Canola stubble or a canola field is adjacent to emerging canola fields.
- Flea beetle populations in previous years have been observed to be high and the level of pressure sustained.

Foliar insecticide applications should be made immediately if:

- Stem feeding is observed. This may occur under cool and windy conditions.

11.0 DIRECTIONS FOR USE

11.1 General Information

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

HELIX VIBRANCE is a premix formulation that includes a pigment. To optimize seed coverage, water, additional colourant and polymers can be added to facilitate application.

Apply 1.5 L/100 kg seed of HELIX VIBRANCE using standard commercial seed treatment equipment that provides uniform seed coverage. Uneven or incomplete seed coverage may not give the desired level of insect or disease control. Consult the manufacturer of the seed treating equipment for advice on the operation and calibration of the equipment. Maintain constant product agitation during the seed treatment process. Allow the seed to dry before bagging.

Ideal storage temperature is above freezing and below 30 °C. Repeated freeze-thawing of HELIX VIBRANCE will not affect the physical integrity of the product. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application.

This product contains a pigment that will adequately colour the treated seed. However, users are responsible for ensuring that the treated seed, when dried and ready for bagging, has an unnatural colour. If the pigment contained in the formulation does not colour the seed adequately, additional colourant must be added to the mixture while treating the seed. Follow instructions on the colourant package for mixing. Regulations pertaining to colouration of treated seed enforced under the “Seed Act” must be strictly adhered to when using this product.

12.0 CROP USE DIRECTIONS

12.1 Canola, Rapeseed, Mustard Seed (Condiment and Oilseed)

CROPS	Canola Rapeseed Mustard Seed (condiment and oilseed)
INSECTS CONTROLLED	Flea beetles
DISEASES CONTROLLED	Seed-borne Blackleg (<i>Leptosphaeria maculans</i>) Seed-borne Alternaria (<i>Alternaria</i> spp.) Seedling disease complex (damping-off, seedling blight seed rot, and root rot) caused by <i>Pythium</i> spp., <i>Fusarium</i> spp. and <i>Rhizoctonia</i> spp.
RATE	1.5 L product/100 kg seed
NOTES	One application as a seed treatment. Do not make any subsequent application of a Group 4 Insecticide (i.e., in-furrow or foliar application) following treatment with HELIX VIBRANCE.

Note: Seed Storage

Lab and field studies have shown that HELIX VIBRANCE treated canola and mustard can be safely stored for 18 months without loss in germination or insect and disease performance. However, due to seed quality and seed storage conditions beyond the control of Syngenta Canada Inc., no claims are made to guarantee the germination of carry-over seed or propagating materials for all crop seed. Treatment of highly mechanically scarred or damaged seed, or seed known to be of low vigour and poor quality, may result in reduced germination and/or reduction of seed and seedling vigour. Treating such seed with HELIX VIBRANCE should only be done for curative control of existing disease pests. Treat a small quantity of seed using equipment similar to that planned for treating the total seed lot. Conduct germination tests on a small portion of seed before committing the total seed lot to a selected seed treatment.

Seeding Equipment:

Depending on the seeding equipment used, seed treated with HELIX VIBRANCE may not flow through the equipment at the same rate as untreated seed or seed treated with other canola seed treatment products. Re-calibration of seeding equipment is recommended before planting seed treated with HELIX VIBRANCE.

13.0 RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, HELIX VIBRANCE contains a Group 4 insecticide and Groups 3, 4, 7 and 12 fungicides. Any insect or fungal population may contain individuals naturally resistant to HELIX VIBRANCE and other Group 4 insecticides or Groups 3, 4, 7 and 12 fungicides. A gradual or total loss of pest control may occur over time if these insecticides and fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide and fungicide resistance:

Where possible, rotate the use of HELIX VIBRANCE or other Group 4 insecticides and Groups 3, 4, 7 and 12 fungicides with different groups that control the same insects or pathogens.

Insecticide and fungicide use should be based on an IPM program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological and other chemical control practices.

Monitor treated insect and fungal populations for resistance development.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pests problems in your area.

For further information and to report suspected resistance, contact Syngenta Canada Inc. at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

HELIX® and VIBRANCE® are trademarks of a Syngenta Group Company.

SECTION 1: PRODUCT IDENTIFICATION

Product Identifier: HELIX® VIBRANCE®
Registration Number: 31454 (Pest Control Products Act)
Product Use: Seed treatment fungicide and insecticide.

Formulation No.: A20477A

Syngenta Canada Inc.
 140 Research Lane, Research Park
 Guelph, ON N1G 4Z3

**In Case of Emergency, Call
 1-800-327-8633 (FAST MED)**

MSDS prepared by: Department of Regulatory & Biological Assessment, Syngenta Canada Inc.

For further information, contact: 1-87-SYNGENTA (1-877-964-3682)

SECTION 2: HAZARDS IDENTIFICATION

Physical State: Liquid.

Appearance: Blue opaque liquid.

Odour: Aromatic.

Symptoms of Acute Exposure: May cause mild eye irritation.

Potential Health Effects: Not applicable.

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.

Unusual Fire, Explosion & Reactivity Hazards: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS No.	Average % by weight
Sedaxane	874967-67-6	0.26
Difenoconazole	119446-68-3	1.25
Fludioxonil	131341-86-1	0.13
Thiamethoxam	153719-23-4	20.7
Metalaxyl-M & S isomer	70630-17-0 69516-34-3	0.4
Other Ingredients		77.26

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Material Safety Data Sheet with you when calling Syngenta, a poison control centre or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [**1-800-327-8633 (1-800-FASTMED)**], for further information.

Eye Contact: Flush eyes with clean water, holding eyelids apart for a minimum of 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eyes. Call Syngenta, a poison control centre or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

Skin Contact: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with running water for a minimum of 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

Inhalation: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

Ingestion: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have the person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

Most Important Symptoms/Effects, Acute and Delayed:

May causes mild eye irritation.

Indication of Immediate Medical Attention and Special Treatment:

There is no specific antidote if this product is ingested.

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point and Method: >104 °C (Pensky-Martens Closed Cup).

Upper and Lower Flammable (explosive) Limits in Air: Not applicable.

Auto-ignition Temperature: 395 °C

Flammability: Not available.

National Fire Code Classification: Not applicable.

Hazardous Combustion Products: During a fire, irritating and possible toxic gases may be generated by thermal decomposition or combustion.

Conditions Under which Flammability Could Occur: Not applicable.

Extinguishing Media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist (avoid use of water jet). Wear full protective clothing and self-contained breathing apparatus. Evacuate non-essential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

Sensitivity to Explosion by Mechanical Impact: Not applicable.

Sensitivity to Explosion by Static Discharge: Not applicable.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill clean-up follow good industrial hygiene practices. A small spill can be handled routinely. Wear suitable protective equipment and clothing as described in Section 8 and/or the product label.

Procedures for Dealing with Release or Spill: Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Pick up wash liquid with additional adsorbent and place into compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.

SECTION 7: HANDLING AND STORAGE

Handling Practices: KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours or spray mist. Wear

full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Appropriate Storage Practices/Requirements: Store above 0 °C in original container only in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Protect from freezing. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Applicable Control Measures, Including Engineering Controls: If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV (threshold limit value). Warehouses, production areas, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Sedaxane	Not established	Not established	2 mg/m ³ TWA***	No	Not established
Difenoconazole	Not established	Not established	8 mg/m ³ TWA***	No	Not established
Fludioxonil	Not established	Not established	10 mg/m ³ TWA***	No	Not established
Thiamethoxam	Not established	Not established	3 mg/m ³ TWA***	No	Not established
Metalaxyl-M & S Isomer	Not established	Not established	10 mg/m ³ TWA***	No	Not established

** Recommended by NIOSH.

*** Syngenta Occupational Exposure Limit (OEL).

**** Recommended by AIHA (American Industrial Hygiene Association).

† Material listed in Ingredient Disclosure List under the Hazardous Products Act

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
Syngenta Hazard Category: D

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL AND/OR ON-FARM APPLICATIONS.

Personal Protective Equipment for Each Exposure Route:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

Ingestion: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

Eyes: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Skin: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: Use process enclosures, exhaust ventilation controls, good work practices and respiratory protection to minimize exposure to liquid mists or dust from dried product. Follow product label respirator requirements when using this formulated product to treat seed and when bagging treated seed, handling treated seed (including planting), cleaning-up equipment and conducting other miscellaneous activities. In case of emergency spills, use a NIOSH approved respirator with an organic vapour cartridge and any R, P95 or HE filter.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
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Appearance: Blue opaque liquid.

Formulation Type: Flowable suspension

Odour: Aromatic.

Odour Threshold: Not available.

pH: 6.8 (1% solution in deionized H₂O @ 25 °C)

Viscosity: 750 mPas @ 20 °C.

Relative Density: Not available.

Specific Gravity or Density: 1.30 g/cm³

Solubility in Water:	Sedaxane	14 mg/L @ 25 °C
	Difenoconazole:	15 mg/L @ 25 °C
	Fludioxonil:	1.8 mg/L @ 25 °C
	Thiamethoxam:	4.1 g/L @ 25 °C
	Metalaxyl-M & S Isomer:	26 g/L @ 25 °C

Water/Oil Partition Coefficient (log Kow):	Sedaxane:	3.3
	Difenoconazole:	4.4
	Fludioxonil:	4.1
	Thiamethoxam:	-0.1
	Metalaxyl-M & S Isomer:	1.7

Vapour Pressure and Reference Temperature:	Sedaxane:	4.9 x 10 ⁻¹⁰ mmHg @ 20 °C
	Difenoconazole:	3.50 x 10 ⁻¹² mmHg @ 20 °C
	Fludioxonil:	2.9 x 10 ⁻⁹ mmHg @ 25 °C
	Thiamethoxam:	2 x 10 ⁻¹¹ mmHg @ 20 °C
	Metalaxyl-M & S Isomer:	2.5 x 10 ⁻⁵ mmHg @ 25 °C

Vapour Density: Not available.

Boiling Point: Not available.

Boiling Range: Not available.

Melting Point: Not applicable.

Freezing Point: Not available.

Evaporation Rate: Not available.

Flash Point and Method: >104 °C (Pensky-Martens Closed Cup).

Flammability: Not available.

Upper and Lower Flammable (Explosive) Limits in Air: Not Applicable.

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: Stable under normal use and storage conditions.

Conditions to Avoid: Not available.

Incompatibility with Other Materials: Not applicable.

Possibility of Hazardous Reactions: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.

SECTION 11: TOXICOLOGICAL INFORMATION
Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>LowAcute Toxicity</u> Oral (LD50 Rat) 3,129 mg/kg body weight
Dermal:	<u>LowAcute Toxicity</u> Dermal (LD50 Rat) > 5,000 mg/kg body weight
Inhalation:	<u>LowAcute Toxicity</u> Inhalation (LC50 Rat) > 2.55 mg/L air – 4 hours
Eye Contact:	<u>Minimally Irritating</u> (Rabbit)
Skin Contact:	<u>Non Irritating</u> (Rabbit)
Skin Sensitization:	<u>Not a Sensitizer</u> (Mouse)

Chronic/Sub-chronic Toxicity Studies:

Sedaxane:	No adverse effect has been observed in chronic toxicity tests.
Difenoconazole:	No adverse effect has been observed in chronic toxicity tests.
Fludioxonil:	No adverse effect has been observed in chronic toxicity tests.
Thiamethoxam:	Did not show neurotoxicity in animal experiments.
Metalaxyl-M & S Isomer:	Liver effects at high dose animal tests.

Carcinogenicity:

Sedaxane:	At extremely high doses, numerically higher incidences of uterine, thyroid and liver tumours (male and/or female rats) and liver tumours (male mice) were within the range of normal background variation and thus considered unrelated to treatment. Some Regulatory Authorities have taken a more conservative position that these high-dose findings are treatment-related in rats and mice. The dose levels where these findings occur are not relevant to human exposure levels.
Difenoconazole:	Did not show carcinogenic effects in animal experiments.
Fludioxonil:	Did not show carcinogenic effects in animal experiments.
Thiamethoxam:	Liver tumours at high doses noted in mice that are not relevant to humans.
Metalaxyl-M & S Isomer:	Did not show carcinogenic effects in animal experiments.

Reproductive Toxicity:

Sedaxane:	Did not show reproductive toxicity effects in animal experiments.
Difenoconazole:	Did not show reproductive toxicity effects in animal experiments.
Fludioxonil:	Did not show reproductive toxicity effects in animal experiments.
Thiamethoxam:	Did not show reproductive toxicity effects in animal experiments.
Metalaxyl-M & S Isomer:	Did not show reproductive toxicity effects in animal experiments.

Teratogenicity:

Sedaxane: Did not show teratogenic effects in animal experiments.
 Difenconazole: Not teratogenic in animal studies.
 Fludioxonil: Not teratogenic in animal studies.
 Thiamethoxam: Not teratogenic in rats or rabbits.
 Metalaxyl-M & S Isomer: Did not show teratogenic effects in animal experiments.

Mutagenicity:

Sedaxane: Did not show mutagenic effects in animal experiments.
 Difenconazole: Did not show mutagenic effects in animal experiments.
 Fludioxonil: Did not show mutagenic effects in animal experiments.
 Thiamethoxam: Did not show mutagenic effects in animal experiments.
 Metalaxyl-M & S Isomer: Did not show mutagenic effects in animal experiments.

Toxicity of Other Components:

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

SECTION 12: ECOLOGICAL INFORMATION
Eco-Acute Toxicity:

Sedaxane:

Invertebrates (Water Flea) EC ₅₀	6.1 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	1.1 ppm
Birds (8-day dietary – Bobwhite Quail) LC ₅₀	> 2,000 ppm

Difenconazole:

Invertebrates (Water Flea) 48-hour EC ₅₀	0.77 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	1.6 ppm
Birds (21-day dietary – Mallard Duck) LD ₅₀	> 2,500 ppm

Fludioxonil:

Invertebrates (Water Flea) EC ₅₀	0.90 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	0.23 ppm
Birds (8-day dietary – Mallard Duck) LC ₅₀ /EC ₅₀	> 5,200 ppm

Thiamethoxam:

Invertebrates (Water Flea) EC ₅₀	> 106 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	> 100 ppm
Birds (8-day dietary – Bobwhite Quail) LC ₅₀	> 5,200 ppm

Metalaxyl-M & S Isomer:

Invertebrates (Water Flea) EC ₅₀	28 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	130 ppm
Birds (5-day dietary – Bobwhite Quail) LD ₅₀	> 5,000 ppm

Environmental Fate:

Sedaxane:
 Persistent in soil. Low mobility in soil.

Difenconazole:
 Moderately persistent to persistent in soil. Low mobility in soil.

Fludioxonil:

Moderately persistent in soil. Low mobility in soil.

Thiamethoxam:

Moderately persistent in soil. Moderately mobile in soil.

Metalaxyl-M & S Isomer:

Moderately persistent in soil. Moderate mobility in soil.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Information: Do not reuse containers unless they are specifically designed to be refillable. Empty container retains product residue. Triple rinse, or equivalent, empty container, return rinse water to dilution mixture, and dispose of dilution mixture as a hazardous waste if it cannot be disposed of by use according to the label instructions. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents must accompany the shipment.

SECTION 14: TRANSPORT INFORMATION**Shipping Classification:**

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION – ROAD/RAIL:

Not regulated

Special Shipping Information:

Not applicable

SECTION 15: REGULATORY INFORMATION**Hazardous Products Act Information: CPR Compliance**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

Pest Control Products (PCP) Act Registration No.: 31454

SECTION 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant MSDS. Hazardous properties of all ingredients have been considered in the preparation of this MSDS. Read the entire MSDS for the complete hazard evaluation of this product.

Revision Date (Y-M-D): 2017-12-31
Supersedes Date (Y-M-D): 2014-10-30

Prepared by: Syngenta Canada Inc.
1-87-SYNGENTA (1-877-964-3682)

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HELIX[®] VIBRANCE[®] plus FORTENZA[®] is a combination of separately registered products comprised of [HELIX](#) [VIBRANCE](#) and [FORTENZA](#).

Click on the name of each product for their respective label.

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Inferno[®] Trio

herbicide

SUSPENSION CONCENTRATE HERBICIDE
AGRICULTURAL

FOR PREPLANT AND PREEMERGENCE APPLICATION ON SPRING WHEAT (EXCLUDING DURUM WHEAT)
FOR SALE AND USE IN MANITOBA, SASKATCHEWAN, ALBERTA AND INTERIOR OF BRITISH COLUMBIA
(INCLUDING THE PEACE RIVER REGION OF BRITISH COLUMBIA) ONLY

ACTIVE INGREDIENT:

Flucarbazone (present as flucarbazone-sodium)	141 g/L
Florasulam50 g/L
Carfentrazone-ethyl.	175 g/L

REGISTRATION NUMBER 33273

PEST CONTROL PRODUCTS ACT

CAUTION: SKIN IRRITATION
POTENTIAL SKIN SENSITIZER

Warning, contains the allergen (sulfites)
Contains petroleum distillates

READ THE LABEL AND BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

For Product Use Information Call 1-866-761-9397

FOR 24-HOUR MEDICAL EMERGENCY ASSISTANCE CALL PROPHARMA: 1-866-303-6952 or +1-651-603-3432.

FOR 24-HOUR CHEMICAL EMERGENCY (Spills, leaks, fire, exposure or accident)

CALL CHEMTREC: 1-800-424-9300 or +1-703-527-3887.

ARYSTA LIFESCIENCE NORTH AMERICA, LLC
15401 Weston Parkway, Suite 150
Cary, NC 27513

122018V002
104606-A(0119)

NET CONTENTS: 3.24 LITERS

 **Arysta**
LifeScience

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the PEST CONTROL PRODUCTS ACT to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

PRODUCT INFORMATION

INFERNO® TRIO HERBICIDE is a broad-spectrum herbicide for preplant and preemergence applications to spring wheat (hard red spring, Canada Prairie spring, soft white spring, and extra strong or utility), excluding durum wheat.

INFERNO TRIO HERBICIDE when applied alone (without glyphosate) must be tank-mixed with a surfactant listed on this label.

INFERNO TRIO HERBICIDE is absorbed by foliage and roots of grass and broadleaf weeds. These weeds cease growth soon after application, removing the competitive effects of susceptible weeds. However, complete weed control may not be seen for one to two weeks.

DIRECTIONS FOR USE

General Precautions

Read the entire DIRECTIONS FOR USE before using **INFERNO TRIO HERBICIDE**.

- Ground application only, do not apply by air.
- Do not apply treatments if it is raining or if rainfall is expected within one (1) hour after application.
- Do not apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands) or estuarine/marine habitats.
- Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of waste.
- Do not mix, load or clean spray equipment within 10 metres of well-heads or aquatic systems, including marshes, ponds, ditches, streams, lakes, etc.
- Do not graze treated fields or use green crop for feed. Wheat grain or straw from harvested treated fields may be fed to livestock.
- Do not allow this chemical to drift on to other crops or other non-target crops.
- Observe minimum interval to harvest of 80 days after treatment.
- Do not treat wheat underseeded to legumes.
- Do not freeze.
- Apply registered rates of glyphosate when tank-mixed with **INFERNO TRIO HERBICIDE** for preplant or preemergence application for control of label weeds.

Ground Application

- Apply in a spray volume of 50-100 L/ha (22.5-45 L/acre or 5-10 gallons/acre) at 207-345 kPa (30-50 PSI) pressure to ensure proper weed coverage.
- Flat fan nozzles of 80° or 110° are recommended for optimum coverage. Do not use floodjet nozzle or control droplet application equipment. Nozzles may be oriented 45° forward to enhance crop penetration and to give better weed coverage.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-866-761-9397 or obtain technical advice from the distributor or your provincial agricultural representative.

Buffer Zones

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive freshwater habitats (such as freshwater lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:	
		Aquatic Habitat	Terrestrial Habitat
Field sprayer	Wheat	5	30

For tank-mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank-mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank-mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

TIMING OF APPLICATION

INFERNO TRIO HERBICIDE can be applied as a preplant or preemergent application to spring wheat (excluding durum). For optimal weed control, apply anytime between 1 week prior to planting and crop emergence.

Use of **INFERNO TRIO HERBICIDE** as a preplant or preemergence application allows for early weed removal and reduced weed competition with wheat. Do not apply more than 15 g ai/ha of flucarbazone sodium herbicide, the equivalent of one application, or 100 mL/ha of **INFERNO TRIO HERBICIDE**, preplant or preemergence per growing season.

Apply to young, emerged, actively growing weeds that are less than 10 cm tall or across.

For best results apply to weeds that are actively growing. Wheat exposed to water-logged or saturated soils, temperature extremes such as hot or cold, drought, low fertility or plant disease after application could result in unacceptable injury symptoms. Weed control may also be reduced by these same conditions or if heavy weed infestations exist or when applications are made outside the application recommendations.

PRODUCT RATES AND WEEDS CONTROLLED

Product	Rate	Weeds Controlled and Suppressed
INFERNO TRIO HERBICIDE	100 mL/ha + 0.25 % v/v non-ionic surfactant	Controlled: Canola ²⁻³ (volunteer), Carpetweed, Cleavers, Cocklebur, Flixweed, Green foxtail, Kochia ^{3, 4} , Lamb's quarters, Redroot pigweed ² , Russian thistle, Shepherd's purse, Stinkweed, Wild Buckwheat, Wild mustard. Suppressed: Hempnettle, Narrow-leaved hawk's-beard, Wild oat, Dandelion.
INFERNO TRIO HERBICIDE + Glyphosate	100 mL/ha + 450 g ae/ha of glyphosate	Controlled: Those weeds controlled by INFERNO TRIO HERBICIDE alone, plus: Barley (volunteer), Barnyard grass, Chickweed, Corn spurry, Cow cockle, Common ragweed, Dandelion ¹ , Downy brome, Eastern black nightshade, Giant foxtail, Lady's-thumb, Night-flowering catchfly, Persian darnel, Round-leaved mallow, Smartweed (green and Pennsylvania), Smooth pigweed, Stork's bill, Wild Tomato, Velvetleaf, Wheat (volunteer), Wild oat.

¹ Top growth control only.
² Control of weeds that emerge within 7 days following application.
³ Including glyphosate-tolerant varieties or glyphosate resistant weeds.
⁴ Including group 2 resistant weeds.

Unacceptable crop injury may occur if applied to soils with organic matter less than 2.5% or soil pH greater than 8. Unacceptable crop injury may occur if applied to soils saturated with water.

When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

GLYPHOSATE TANK-MIX

INFERNO TRIO HERBICIDE may be tank-mixed with glyphosate herbicide present as isopropylamine, diammonium, or potassium salt when applied preplant or postplant preemergence. Refer to the appropriate product label for use directions.

SURFACTANT TANK-MIX

When **INFERNO TRIO HERBICIDE** is applied alone, without glyphosate, include a non-ionic surfactant such as Ag-Surf, Agral 90, ProSurf, etc.

MIXING INSTRUCTIONS

1. Ensure the spray tank is clean. In-line strainers and nozzle screens should be clean and 50-mesh or coarser.
2. Fill the spray tank 1/3 to 1/2 full with clean water and begin agitation or bypass.
3. Add the appropriate **INFERNO TRIO HERBICIDE** rate directly to the spray tank. Maintain sufficient agitation during both mixing and application.
4. Add the tank-mix partner if required.
5. Add the surfactant, if required, and then complete filling tank with balance of water needed.

SPRAYER CLEAN-UP

1. Drain the tank and thoroughly rinse spray tank, boom and hoses with clean water. Pay particular attention to flushing out any visible deposits.
2. Fill the tank with clean water and 1 % v/v (1 L/100 L) household ammonia. Flush the hoses, boom and nozzles with the cleaning solution. Circulate for at least 15 minutes. Flush hoses, boom and nozzles once more, then drain the tank.
3. Clean nozzles and screens in a separate container using the ammonia and water.
4. Repeat #2.
5. Rinse tank, boom and hoses with clean water.
 - Do not clean sprayer near desirable vegetation, wells, or other water sources.
 - Dispose of all rinsings in accordance with provincial regulations.
 - Check tank-mix partner label for any additional clean-up procedures.

ROTATIONAL CROPS

Fields can be seeded to winter wheat the fall after application. The following crops may be planted the following year or fields can be summerfallowed.

Soil Zones and Rotational Crops			
Gray-Wooded	Black	Dark Brown	Brown
Spring wheat Barley Canola Field peas*	Spring wheat Barley Canola Field peas* Field bean Flax Durum wheat Soybean Sunflower	Spring wheat Barley Canola Field peas* Flax Durum wheat Soybean Sunflower	Spring wheat

*Field peas may be grown the year following **INFERNO TRIO HERBICIDE** application providing the following are all met:

1. Soil pH must be below 7.5,
2. Organic matter must be above 4 %, and
3. Precipitation must be equal to or above 10-year average (minimum 100 mm within 60 days of application in year of application).

As **INFERNO TRIO HERBICIDE** is degraded by soil microbes, environmental conditions that decrease microbial activity must be considered when making rotational cropping decisions. These environmental conditions include prolonged drought and/or cold temperatures within the following

cropping season, as well as soils with both low OM (less than 2 %) and high pH (greater than 7.5). If these conditions exist, a soil bioassay may be necessary to ensure rotational crop safety.

Do not plant crops other than those listed above in the year following application of **INFERNO TRIO HERBICIDE** on wheat.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, **INFERNO TRIO HERBICIDE** is a Group 2 Herbicide and Group 14 Herbicide. Any weed population may contain or develop plants naturally resistant to **INFERNO TRIO HERBICIDE** and other Group 2 and Group 14 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **INFERNO TRIO HERBICIDE** or other Group 2 and Group 14 herbicides within a growing season or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank-mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seedling rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other chemical control practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Arysta LifeScience North America, LLC at 1-866-761-9397.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

DO NOT APPLY BY AIR.

May irritate skin. Avoid contact with skin.

PROTECTIVE CLOTHING

When mixing, loading, applying, clean-up and repair, wear a long-sleeved shirt, long pants, socks and shoes. In addition, wear chemical-resistant gloves during mixing and loading.

Read and follow handling precautions and protective clothing recommendations on tank-mix partner and surfactant tank-mix partner labels.

Follow manufacturer's instructions for cleaning/maintaining PPE (Personal Protective Equipment). If no such instructions for washables, use detergent and hot water. Keep PPE apart from other laundry and wash separately.

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

No specific antidote is available. Treat the patient symptomatically. Contains petroleum distillate – vomiting may cause aspiration pneumonia.

ENVIRONMENTAL HAZARDS

- TOXIC to aquatic organisms / non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

PESTICIDE STORAGE: Store in cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food or feed. Store in original container and out of reach of children, preferably in a locked storage area.

SPILL CLEAN-UP:

Contact the manufacturer and the provincial regulatory agency in case of a spill and for clean-up of spills. Follow safety precautions as directed for handling the product.

If the product is clean, it may be used; otherwise, follow the DISPOSAL instructions.

DISPOSAL

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

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Inferno[®] Trio

herbicide

HERBICIDE CONCENTRÉ EN SUSPENSION
AGRICOLE

POUR L'APPLICATION EN PRÉSEMI ET EN PRÉLEVÉE SUR LE BLÉ DE PRINTEMPS (À L'EXCLUSION DU BLÉ DUR)
POUR VENTE ET POUR UTILISATION AU MANITOBA, EN SASKATCHEWAN, EN ALBERTA ET DANS LA ZONE INTÉRIEURE DE LA
COLOMBIE-BRITANNIQUE (Y COMPRIS DANS LA RÉGION DE LA RIVIÈRE DE LA PAIX EN COLOMBIE-BRITANNIQUE) SEULEMENT

PRINCIPE ACTIF :

Flucarbazone (présent sous forme de flucarbazone-sodium)	141 g/L
Florasulam	50 g/L
Carfentrazone-éthyle	175 g/L

N° D'HOMOLOGATION 33273

LOI SUR LES PRODUITS ANTIPARASITAIRES

ATTENTION: IRRITANT CUTANÉ
SENSIBILISANT CUTANÉ POTENTIEL

Avertissement, contient l'allergène sulfites
Contient des distillats de pétrole

LIRE L'ÉTIQUETTE ET LA BROCHURE AVANT L'EMPLOI

GARDER HORS DE LA PORTÉE DES ENFANTS

Renseignements sur le produit : 1-866-761-9397

POUR TOUTE AIDE MÉDICALE D'URGENCE 24 HEURES SUR 24, APPELER PROPHARMA au 1-866-303-6952 ou +1-651-603-3432.

POUR TOUTE AIDE D'URGENCE CHIMIQUE, 24 HEURES SUR 24

(déversement, fuite, incendie, exposition ou accident), APPELER CHEMTREC au 1-800-424-9300 ou +1-703-527-3887.

ARYSTA LIFESCIENCE NORTH AMERICA, LLC
15401 Weston Parkway, Suite 150
Cary, NC 27513

122018V002
104606-A(0119)

CONTENU NET: 3.24 LITRES

 **Arysta**
LifeScience

AVIS À L'UTILISATEUR

Ce produit antiparasitaire doit être employé strictement selon le mode d'emploi qui figure sur la présente étiquette. L'emploi non conforme à ce mode d'emploi constitue une infraction à la LOI SUR LES PRODUITS ANTIPARASITAIRES. L'utilisateur assume les risques de blessures aux personnes ou de dommages aux biens que l'utilisation du produit peut entraîner.

RENSEIGNEMENTS SUR LE PRODUIT

L'**HERBICIDE INFERNO® TRIO** est un herbicide à large spectre pour l'application en présemis et en prélevée sur le blé de printemps (blé de force roux de printemps, blé de printemps Canada Prairie, blé tendre blanc de printemps, et blé extra fort ou d'utilité générale), à l'exclusion du blé dur.

Lorsque l'HERBICIDE INFERNO TRIO est appliqué seul (sans glyphosate), il doit être mélangé en cuve avec un agent tensioactif mentionné sur cette étiquette.

L'**HERBICIDE INFERNO TRIO** est absorbé par le feuillage et les racines des graminées et des mauvaises herbes à feuilles larges. Ces mauvaises herbes cessent de croître après l'application du produit, éliminant du fait même les effets concurrentiels des mauvaises herbes sensibles. Toutefois, il peut falloir une à deux semaines afin que la suppression complète des mauvaises herbes ne soit visible.

MODE D'EMPLOI

Mises en garde générales

Lire le MODE D'EMPLOI au complet avant d'utiliser l'**HERBICIDE INFERNO TRIO**.

- Application terrestre seulement, ne pas appliquer par voie aérienne.
- Ne pas appliquer s'il pleut ou si des averses sont prévues dans l'heure suivant l'application.
- Ne pas appliquer ce produit directement sur les habitats dulcicoles sensibles (tels que les lacs, les rivières, les mares vaseuses, les étangs, les fondrières des Prairies, les criques, les marais, les ruisseaux, les réservoirs et les marécages), ni sur les habitats estuariens/marins.
- Ne pas contaminer les sources d'eau d'irrigation ou d'eau potable ni les habitats aquatiques par suite du nettoyage de l'équipement ou de l'élimination des déchets.
- Ne pas mélanger, charger ou nettoyer l'équipement de pulvérisation à moins de 10 mètres des têtes de puits ou des systèmes aquatiques, y compris les marais, étangs, fossés, ruisseaux, lacs, etc.
- Ne pas laisser paître les bêtes dans les champs traités ni utiliser la culture fourragère comme fourrage vert. Les grains de blé ou la paille provenant des champs traités peuvent être donnés aux bêtes comme fourrage.
- Empêcher la dérive de ce produit vers d'autres cultures ou d'autres cultures non ciblées.
- Après le traitement, respecter un délai d'attente avant la récolte de 80 jours.
- Ne pas traiter le blé contre-ensemencé de légumineuses.
- Ne pas congeler.
- Appliquer des taux homologués de glyphosate lorsqu'il est mélangé en cuve avec l'**HERBICIDE INFERNO TRIO** pour l'application en présemis et en prélevée afin de supprimer les mauvaises herbes mentionnées sur l'étiquette

Application terrestre

- Appliquer dans un volume de pulvérisation de 50 à 100 L/ha (22,5 à 45 L/acre ou 5 à 10 gallons/acre), à une pression de 207 à 345 kPa (30 à 50 lb/po²) pour s'assurer d'une couverture appropriée des mauvaises herbes.
- Les buses à jet plat de 80° ou de 110° sont recommandées pour un épandage optimal. Ne pas utiliser de buses à miroir ni d'équipement d'épandage à grosses gouttelettes. Les buses peuvent être orientées à 45° vers l'avant afin d'accroître la pénétration dans la culture et de favoriser une meilleure couverture des mauvaises herbes.

Application à l'aide d'un pulvérisateur agricole: **NE PAS** appliquer pendant les périodes de calme plat ou lorsque les vents soufflent en rafales. **NE PAS** pulvériser en gouttelettes de taille inférieure à la taille grossière de la classification de l'American Society of Agricultural Engineers (ASAE S572.1). La rampe de pulvérisation doit être fixée à 60 cm au moins au-dessus de la culture ou du sol.

Mises en garde propres au produit

Lire attentivement l'étiquette au complet et bien la comprendre avant d'ouvrir le contenant. Pour toute question, appeler le fabricant au 1-866-761-9397. Pour obtenir des conseils techniques, contacter le distributeur ou un conseiller agricole provincial.

Zones tampons

Les traitements localisés avec l'équipement manuel **NE** requièrent **PAS** une zone tampon.

Les zones tampons spécifiées dans le tableau ci-dessous sont requises entre le point d'application directe et la lisière sous le vent la plus proche des habitats terrestres sensibles (tels que les herbages, les secteurs forestiers, les brise-vent, les boisés, les haies, les zones riveraines et la végétation arbustive), ainsi que des habitats dulcicoles sensibles (tels que les lacs, les rivières, les mares vaseuses, les étangs, les fondrières des Prairies, les criques, les marais, les ruisseaux, les réservoirs et les marécages).

Méthode d'application	Culture	Zone tampon (mètres) requise pour la protection :	
		D'habitats aquatiques	D'habitats terrestres
Pulvérisateur agricole	Blé	5	30

Lorsqu'on utilise un mélange en réservoir, consulter les étiquettes des produits d'association et respecter la zone tampon la plus large (la plus restrictive) parmi les produits utilisés dans le mélange et appliquer au moyen de la catégorie de gouttelettes la plus grosse (ASAE) indiquée sur les étiquettes des produits d'association.

La zone tampon de ce produit peut être modifiée en fonction des conditions météorologiques et de la configuration de l'équipement de pulvérisation en accédant le calculateur de zone tampon sur le site Web de l'Agence de réglementation de la lutte antiparasitaire.

PÉRIODE D'APPLICATION

L'**HERBICIDE INFERNO TRIO** peut être appliqué en présemis et en prélevée au blé de printemps (à l'exception du blé dur). Pour obtenir une suppression optimale des mauvaises herbes, appliquer n'importe quand entre la semaine précédant l'ensemencement et l'émergence de la récolte.

L'application de l'**HERBICIDE INFERNO TRIO** en présemis et en prélevée permet l'élimination hâtive des mauvaises herbes et réduit la concurrence des mauvaises herbes avec le blé.

Ne pas appliquer plus de 15 g m.a./ha d'herbicide flucarbazone-sodium, soit l'équivalent d'une application, ou 100 mL/ha d'**HERBICIDE INFERNO TRIO**, en présemis ou en prélevée, par saison de croissance.

Appliquer sur les jeunes mauvaises herbes levées en pleine croissance, qui font moins de 10 cm de hauteur ou de diamètre.

Pour obtenir de meilleurs résultats, appliquer sur les mauvaises herbes en pleine croissance. Le blé exposé aux sols engorgés ou saturés d'eau, aux extrêmes de températures (très chaud ou très froid), à la sécheresse, à un faible degré de fertilité ou à la maladie, après l'application, risque d'afficher des symptômes de lésion inacceptables. La suppression des mauvaises herbes risque également d'être réduite par ces mêmes conditions, ou si le degré d'infestation des mauvaises herbes est très élevé, ou lorsque les applications ne respectent pas les recommandations d'usage.

DOSES DE PRODUIT ET MAUVAISES HERBES SUPPRIMÉES		
Produit	Dose	Mauvaises herbes supprimées et réprimées
HERBICIDE INFERNO TRIO	100 mL/ha + 0,25 % v/v d'agent tensioactif non ionique	Supprimées: Canola ^{2,3} (spontané), molligine verticillée, gaillet gratteron, lampouze glouteron, sagesse-des-chirurgiens, sétaire verte, kochia à balais ^{2,3} , chénopode blanc, amarante à racine rouge ² , soude roulante, bourse-à-pasteur, diplotaxe des murs, renouée liseron, moutarde des champs. Réprimées : Ortie royale, crépis des toits, folle avoine, pissenlit.
HERBICIDE INFERNO TRIO + Glyphosate	100 mL/ha + 450 g é.a./ha de glyphosate	Supprimées: Mauvaises herbes supprimées par l' HERBICIDE INFERNO TRIO seul, plus : Orge (spontané), échinochloa pied-de-coq, mouron des oiseaux, spargoute des champs, saponnaire des vaches, petite herbe à poux, pissenlit ¹ , brome des toits, morelle noire de l'Est, sétaire géante, renouée persicaire, silène noctiflore, ivraie de Perse, mauve à feuilles rondes, renouée (scabre et de Pennsylvanie), amarante hybride, érodium cicutaire, morelle à trois fleurs, abutilon, blé (spontané), folle avoine.

¹ Suppression des parties aériennes seulement.
² Suppression des mauvaises herbes émergeant dans les sept jours suivant l'application.
³ Y compris les variétés tolérantes au glyphosate ou les mauvaises herbes résistantes au glyphosate.
⁴ Y compris les mauvaises herbes résistant au groupe 2.

Des lésions inacceptables peuvent se produire si le produit est appliqué à des sols ayant moins de 2,5 % de matière organique ou ayant un pH plus élevé que 8. Des lésions inacceptables peuvent se produire si le produit est appliqué à des sols saturés d'eau.

Lorsque le produit est appliqué comme élément d'un mélange en cuve, lire et suivre toutes les instructions sur l'étiquette, y compris les doses d'emploi, les restrictions et les limites de pâturage de chaque produit utilisé dans le mélange en cuve. Suivre les mesures de précaution les plus rigoureuses énoncées sur les étiquettes des deux produits, relativement au mélange, au chargement et à l'application.

MÉLANGE EN CUVE AVEC LE GLYPHOSATE

L'**HERBICIDE INFERNO TRIO** peut être mélangé en cuve avec l'herbicide glyphosate présent sous forme de sel d'isopropylamine, de sel diammonique ou de sel de potassium pour l'application en présemis ou en prélevée après le semis. Consulter l'étiquette du produit approprié pour connaître le mode d'emploi.

MÉLANGE EN CUVE AVEC UN AGENT TENSIOACTIF

Lorsque l'**HERBICIDE INFERNO TRIO** est appliqué seul, sans glyphosate, ajouter un agent tensioactif non ionique comme Ag-Surf, Agral 90, ProSurf, etc.

INSTRUCTIONS DE MÉLANGE

1. S'assurer que le réservoir de pulvérisation est propre. Les filtres directs et les tamis de buse doivent être propres et comporter un maximum de 50 mailles.
2. Remplir le réservoir au tiers ou à moitié d'eau propre et mettre en marche le système d'agitation ou de retour en cuve.
3. Ajouter la dose appropriée d'**HERBICIDE INFERNO TRIO** directement dans le réservoir de pulvérisation. Maintenir une agitation suffisante durant le mélange et l'épandage.
4. Ajouter le produit d'association, au besoin.
5. Ajouter l'agent tensioactif, au besoin, puis finir de remplir le réservoir du volume d'eau requis.

NETTOYAGE DU PULVÉRISATEUR

1. Vider et rincer à fond le réservoir de pulvérisation, la rampe et les tuyaux avec de l'eau propre. Veiller particulièrement à bien éliminer les dépôts visibles.
2. Remplir le réservoir d'eau propre et ajouter 1 % v/v (1 L/100 L) d'ammoniac domestique. Faire circuler la solution de nettoyage dans les tuyaux, la rampe et les buses. Faire circuler pendant au moins 15 minutes. Rincer une fois de plus les tuyaux, la rampe et les buses, puis vider le réservoir.
3. Nettoyer les buses et les tamis dans un contenant séparé avec de l'eau et de l'ammoniac.
4. Répéter l'étape numéro 2.
5. Rincer le réservoir, la rampe et les tuyaux avec de l'eau propre.
 - Ne pas nettoyer le pulvérisateur à proximité de végétation à préserver, de puits ou d'autres sources d'approvisionnement en eau.
 - Éliminer les rinçures conformément à la réglementation provinciale.
 - Vérifier l'étiquette des produits d'association pour obtenir les autres instructions de nettoyage.

CULTURES DE ROTATION

Le blé d'hiver peut être semé dans les champs à l'automne suivant l'application. Les cultures suivantes peuvent être semées l'année suivante ou les champs peuvent être mis en jachère d'été.

Zones de sol et cultures de rotation

Gris forestier	Noir	Brun foncé	Brun
Blé de printemps Orge Canola Pois des champs*	Blé de printemps Orge Canola Pois des champs* Haricots de grande culture Lin Blé dur Soja Tournesol	Blé de printemps Orge Canola Pois des champs* Lin Blé dur Soja Tournesol	Blé de printemps

*Les pois des champs peuvent être cultivés l'année suivant une application de l'**HERBICIDE INFERNO TRIO** si les conditions suivantes sont respectées:

1. le pH du sol est inférieur à 7,5;
2. la teneur en matière organique est supérieure à 4 %; et
3. les précipitations doivent être égales ou supérieures à la moyenne sur 10 ans (au moins 100 mm dans les 60 jours suivant l'application au cours de l'année du traitement).

Comme l'**HERBICIDE INFERNO TRIO** est dégradé par les microbes du sol, il faut tenir compte des conditions environnementales diminuant l'activité microbienne lorsqu'on choisit les cultures de rotation. Ces conditions environnementales comprennent une sécheresse prolongée et/ou du temps froid précédant la saison de croissance suivante, ainsi que des sols à faible teneur en matière organique (moins de 2 %) et un pH élevé (plus de 7,5). Si ces conditions existent, un test biologique du sol peut s'avérer nécessaire pour assurer la protection des cultures de rotation.

Ne pas semer de cultures autres que celles qui sont indiquées plus haut dans l'année suivant l'application de l'**HERBICIDE INFERNO TRIO** sur le blé.

RECOMMANDATIONS SUR LA GESTION DE LA RÉSISTANCE

Aux fins de la gestion de la résistance, l'**HERBICIDE INFERNO TRIO** fait partie du groupe 2 et du groupe 14. Toute population de mauvaises herbes peut renfermer ou former des plantes naturellement résistantes à l'**HERBICIDE INFERNO TRIO** et à d'autres herbicides du groupe 2 et du groupe 14. Les biotypes résistants peuvent finir par dominer au sein de la population des mauvaises herbes si ces herbicides sont utilisés de façon répétée dans un même champ. Il peut exister d'autres mécanismes de résistance sans lien avec le site d'action, mais qui sont spécifiques à des composés chimiques, comme un métabolisme accru. Il est recommandé de suivre des stratégies appropriées de gestion de la résistance.

Pour retarder l'acquisition de la résistance aux herbicides :

- Dans la mesure du possible, alterner l'**HERBICIDE INFERNO TRIO** ou les herbicides du même groupe 2 et du groupe 14 avec des herbicides qui appartiennent à d'autres groupes et qui suppriment les mêmes mauvaises herbes et ce, au cours d'une seule saison de croissance (applications séquentielles) ou entre les saisons de croissance.

- Utiliser, si cet emploi est permis, des mélanges en cuve contenant des herbicides provenant d'un groupe différent. Pour retarder l'acquisition de la résistance, le composé du mélange le moins susceptible de créer une résistance devrait supprimer la ou les mauvaises herbes ciblées aussi efficacement que le composé du mélange le plus susceptible de créer une résistance.
- Utiliser les herbicides dans le cadre d'un programme de lutte intégrée contre les mauvaises herbes qui privilégie le dépistage, la consultation de données antérieures sur l'utilisation de pesticides et la rotation des cultures, et qui permet l'intégration des techniques de labour (ou d'autres méthodes mécaniques de lutte), des pratiques culturales (par exemple, augmentation de la densité des semis; application d'engrais au moment propice et au moyen d'une méthode précise pour favoriser la croissance de la culture plutôt que celle des mauvaises herbes) ou biologiques (recours à des cultures ou à des variétés de végétaux qui entrent en compétition avec les mauvaises herbes) et d'autres pratiques de lutte.
- Après l'application d'herbicides, surveiller les populations de mauvaises herbes traitées pour y déceler les signes éventuels de l'acquisition d'une résistance (par exemple, une seule des espèces de mauvaises herbes indiquées sur l'étiquette n'a pas été supprimée). En présence de signes attestant une résistance potentielle, empêcher la production des graines de mauvaises herbes sur le site touché en utilisant, dans la mesure du possible, un autre herbicide appartenant à un groupe différent. Empêcher la propagation des mauvaises herbes résistantes d'un champ à l'autre en nettoyant le matériel de labour et de récolte avant le passage dans un autre champ et en utilisant des semences non contaminées.
- Faire analyser les graines de mauvaises herbes potentiellement résistantes par un laboratoire qualifié afin de confirmer leur résistance et d'opter pour un autre herbicide.
- Communiquer avec les spécialistes ou les conseillers agricoles certifiés de la région pour obtenir des recommandations supplémentaires sur une culture ou un biotype de mauvaise herbe précis pour ce qui est de la gestion de la résistance aux pesticides et de la lutte intégrée contre les mauvaises herbes.
- Pour obtenir davantage d'information ou pour signaler des cas possibles de résistance, communiquer avec Arysta LifeScience North America LLC au 1 866 761-9397.

PRÉCAUTIONS

GARDER HORS DE LA PORTÉE DES ENFANTS.

NE PAS APPLIQUER PAR VOIE AÉRIENNE.

Peut irriter la peau. Éviter tout contact avec la peau.

VÊTEMENTS PROTECTEURS

Lors du mélange, du chargement, de l'application, du nettoyage et de la réparation, porter une chemise à manches longues, un pantalon long, des chaussettes et des chaussures. De plus, porter des gants résistant aux produits chimiques pendant le mélange et le chargement.

Lire et suivre les précautions en matière de manipulation et les recommandations relatives aux vêtements protecteurs sur les étiquettes des produits d'association et des agents tensioactifs.

Suivre les instructions du fabricant relativement au nettoyage ou à l'entretien de l'équipement de protection individuelle (EPI). S'il n'existe pas d'instructions pour les articles lavables, utiliser du détergent et de l'eau chaude. Tenir l'EPI à l'écart des autres vêtements et laver séparément.

Se laver les mains avant de manger, de boire, de mâcher de la gomme, de fumer ou d'aller aux toilettes. Enlever immédiatement les vêtements si le pesticide a pénétré à l'intérieur, puis bien se laver et remettre des vêtements propres.

Enlever l'équipement de protection individuelle immédiatement après avoir manipulé ce produit. Laver l'extérieur des gants avant de les enlever. Dès que possible, se laver à fond et mettre des vêtements propres.

Ne pas retourner ni permettre le retour des travailleurs dans la zone traitée durant le délai de sécurité (DS) de 12 heures.

Appliquer uniquement lorsque le risque de dérive de pulvérisation vers les zones résidentielles (maisons et chalets) et les zones d'occupation humaine (écoles et aires de loisir) est minime. Tenir compte de la vitesse du vent, de la direction du vent, des inversions de température, de l'équipement d'application et des réglages du pulvérisateur.

PREMIERS SOINS

EN CAS D'INGESTION : Appeler un centre antipoison ou un médecin immédiatement pour obtenir des conseils sur le traitement. Ne donner aucun liquide à la personne empoisonnée. Ne pas faire vomir à moins d'avoir reçu le conseil de procéder ainsi par le centre antipoison ou le médecin. Ne rien administrer par la bouche à une personne inconsciente.

EN CAS DE CONTACT AVEC LA PEAU OU LES VÊTEMENTS : Enlever tous les vêtements contaminés. Rincer immédiatement la peau à grande eau pendant 15 à 20 minutes. Appeler un centre antipoison ou un médecin pour obtenir des conseils sur le traitement.

EN CAS DE CONTACT AVEC LES YEUX : Garder les paupières écartées et rincer doucement et lentement avec de l'eau pendant 15 à 20 minutes. Le cas échéant, retirer les lentilles cornéennes au bout de 5 minutes et continuer de rincer l'œil. Appeler un centre antipoison ou un médecin pour obtenir des conseils sur le traitement.

EN CAS D'INHALATION : Déplacer la personne vers une source d'air frais. Si la personne ne respire pas, appeler le 911 ou une ambulance, puis pratiquer la respiration artificielle, de préférence le bouche-à-bouche si possible. Appeler un centre antipoison ou un médecin pour obtenir des conseils sur le traitement.

Emporter le contenant, l'étiquette ou prendre note du nom du produit et de son numéro d'homologation lorsqu'on cherche à obtenir une aide médicale.

RENSEIGNEMENTS TOXICOLOGIQUES

Il n'existe pas d'antidote précis. Traiter le patient selon les symptômes. Ce produit contient des distillats de pétrole. Le vomissement peut causer une pneumonie par aspiration.

DANGERS ENVIRONNEMENTAUX

- TOXIQUE pour les organismes aquatiques et pour les plantes terrestres non ciblées. Respecter les zones tampons indiquées à la section MODE D'EMPLOI.
- Pour réduire le ruissellement des zones traitées vers les habitats aquatiques, éviter d'appliquer dans les sites caractérisés par une pente modérée à prononcée, un sol compacté ou de l'argile.
- Éviter d'appliquer ce produit lorsque des averses abondantes sont prévues.
- La contamination des zones aquatiques par suite d'un ruissellement peut être réduite en prévoyant une bande de végétation entre la zone traitée et le bord du plan d'eau.

ENTREPOSAGE

ENTREPOSAGE DU PESTICIDE : Entreposer dans un endroit frais et sec, de façon à prévenir la contamination croisée avec d'autres pesticides, engrais et nourriture de consommation humaine et animale. Entreposer dans le contenant d'origine et hors de la portée des enfants, de préférence dans une aire d'entreposage verrouillée.

NETTOYAGE D'UN DÉVERSEMENT :

S'adresser au fabricant ou à l'organisme de réglementation provincial en cas de déversement ainsi que pour le nettoyage des déversements. Suivre les mêmes précautions de sécurité que pour la manipulation du produit.

Si le produit est propre, il peut être utilisé; autrement, suivre les instructions d'ÉLIMINATION.

ÉLIMINATION :

1. Rincer le contenant trois fois ou le rincer sous pression. Ajouter les rinçures au mélange à pulvériser dans le réservoir.
2. Vérifier si un nettoyage supplémentaire du contenant avant son élimination est exigé en vertu de la réglementation provinciale.
3. Rendre le contenant inutilisable.
4. Éliminer le contenant conformément à la réglementation provinciale.
5. Pour tout renseignement concernant l'élimination des produits non utilisés ou dont on veut se départir, s'adresser au fabricant ou à l'organisme de réglementation provincial. S'adresser également à eux en cas de déversement ainsi que pour le nettoyage des déversements.

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Inferno[®] Trio

herbicide

Group/Groupe 2,4 Herbicide

SUSPENSION CONCENTRATE HERBICIDE

AGRICULTURAL

FOR PREPLANT AND PREEMERGENCE APPLICATION ON SPRING WHEAT
(EXCLUDING DURUM WHEAT)

FOR SALE AND USE IN MANITOBA, SASKATCHEWAN, ALBERTA AND
INTERIOR OF BRITISH COLUMBIA

(INCLUDING THE PEACE RIVER REGION OF BRITISH COLUMBIA) ONLY

ACTIVE INGREDIENT:

Flucarbazone (present as flucarbazone-sodium) 141 g/L

Florasulam 50 g/L

Carfentrazone-ethyl 175 g/L

REGISTRATION NUMBER 33273 PEST CONTROL PRODUCTS ACT

CAUTION: SKIN IRRITATION
POTENTIAL SKIN SENSITIZER

Warning, contains the allergen (sulfites)
Contains petroleum distillates

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

For Product Use Information Call 1-866-761-9397

FOR 24-HOUR MEDICAL EMERGENCY ASSISTANCE CALL PROPHARMA:
1-866-303-6952 or +1-651-603-3432.

FOR 24-HOUR CHEMICAL EMERGENCY (Spills, leaks, fire, exposure or accident)
CALL CHEMTREC: 1-800-424-9300 or +1-703-527-3887.

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NET CONTENTS/CONTENU NET: 3.24 LITERS/LITRES

HERBICIDE CONCENTRÉ EN SUSPENSION

AGRICOLE

POUR L'APPLICATION EN PRÉSEMIIS ET EN PRÉLEVÉE SUR LE BLÉ DE
PRINTEMPS (À L'EXCLUSION DU BLÉ DUR)

POUR VENTE ET POUR UTILISATION AU MANITOBA, EN
SASKATCHEWAN, EN ALBERTA ET DANS LA ZONE INTÉRIEURE DE LA
COLOMBIE-BRITANNIQUE (Y COMPRIS DANS LA RÉGION DE LA RIVIÈRE
DE LA PAIX EN COLOMBIE-BRITANNIQUE) SEULEMENT

PRINCIPE ACTIF :

Flucarbazone (présent sous forme de flucarbazone-sodium) . . . 141 g/L

Florasulam 50 g/L

Carfentrazone-éthyle 175 g/L

N° D'HOMOLOGATION 33273 LOI SUR LES PRODUITS ANTIPARASITAIRES

ATTENTION: IRRITANT CUTANÉ
SENSIBILISANT CUTANÉ POTENTIEL

Avertissement, contient l'allergène sulfites
Contient des distillates de pétrole

LIRE L'ÉTIQUETTE ET LA BROCHURE AVANT L'EMPLOI
GARDER HORS DE LA PORTÉE DES ENFANTS

Renseignements sur le produit : 1-866-761-9397

POUR TOUTE AIDE MÉDICALE D'URGENCE 24 HEURES SUR 24, APPELER
PROPHARMA au 1-866-303-6952 ou +1-651-603-3432.

POUR TOUTE AIDE D'URGENCE CHIMIQUE, 24 HEURES SUR 24
(déversement, fuite, incendie, exposition ou accident), APPELER
CHEMTREC au 1-800-424-9300 ou +1-703-527-3887.

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ARYSTA LIFESCIENCE NORTH AMERICA, LLC
15401 Weston Parkway, Suite 150
Cary, NC 27513

122018V002
104606-A(0119)

SECTION 1: Identification
1.1. Identification

Product form : Mixture
 Product name : INFERNO® TRIO
 Other means of identification : PMRA# 33273

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use : Herbicide
 Restrictions on use : Agriculture, For professional users only

1.3. Details of the supplier of the safety data sheet

Arysta LifeScience Canada, Inc.
 400 Michener Road, Unit 2
 Guelph, Ontario N1K 1E4 - Canada
 T 1-866-761-9397
sds@arysta.com

1.4. Emergency telephone number

Emergency number : Exposure calls (PROPHARMA): 1-866-303-6952 or +1-651-603-3432 (international)
 Spill calls (CHEMTREC) (Contract # CCN1779): +1-800-424-9300 or +1-703-527-3887 (international)

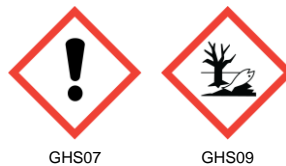
SECTION 2: Hazards identification
2.1. Classification of the substance or mixture
GHS-US classification

Skin Irrit. 2 H315
 Eye Irrit. 2B H320
 Skin Sens. 1 H317
 Aquatic Acute 1 H400
 Aquatic Chronic 1 H410

Full text of hazard classes and H-statements : see section 16

2.2. Label elements
GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Warning

Hazard statements (GHS-US) :

H315 - Causes skin irritation.
 H317 - May cause an allergic skin reaction.
 H320 - Causes eye irritation
 H400 - Very toxic to aquatic life.
 H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (GHS-US) :

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264 - Wash hands, forearms and face thoroughly after handling.
 P272 - Contaminated work clothing must not be allowed out of the workplace
 P273 - Avoid release to the environment.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P302+P352 - If on skin: Wash with plenty of water/...
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P321 - Specific treatment (see supplemental first aid instruction on this label)
 P332+P313 - If skin irritation occurs: Get medical advice/attention.
 P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
 P337+P313 - If eye irritation persists: Get medical advice/attention.
 P362+P364 - Take off contaminated clothing and wash it before reuse.

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P363 - Wash contaminated clothing before reuse.
P391 - Collect spillage.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	% (w/w)	GHS-US classification
Surfactant 1	(CAS-No.) trade secret	40 - 50	Eye Irrit. 2B, H320
carfentrazone-ethyl (ISO) (Active)	(CAS-No.) 128639-02-1	1 - 3	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Flucarbazon sodium (Active)	(CAS-No.) 181274-17-9	1 - 3	Not classified
florasulam (ISO) (Active)	(CAS-No.) 145701-23-1	1 - 3	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Surfactant 2	(CAS-No.) trade secret	1 - 3	Skin Irrit. 2, H315 Eye Dam. 1, H318
Polymer/emulsifier	(CAS-No.) trade secret	1 - 3	Skin Irrit. 2, H315 Eye Irrit. 2A, H319
Distillates (petroleum), hydrotreated light	(CAS-No.) 64742-47-8	1 - 3	Flam. Liq. 3, H226 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411

*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: If inhaled and if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Artificial respiration and/or oxygen if necessary.
First-aid measures after skin contact	: Wash skin thoroughly with mild soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact	: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact	: Causes skin irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Causes eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Burning produces irritating, toxic and noxious fumes.
Reactivity	: No dangerous reactions known.

5.3. Advice for firefighters

Firefighting instructions	: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
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Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear fire/flame resistant/retardant clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Do not get in eyes, on skin, or on clothing. Do not breathe vapour. Do not breathe aerosol. Use personal protective equipment as required.

6.1.1. For non-emergency personnel

Protective equipment : Refer to section 8.2.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Refer to section 8.2.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Do not breathe aerosol. Do not breathe vapours. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area. Use personal protective equipment as required.
Hygiene measures : Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool well ventilated place.
Incompatible products : Strong bases. Strong acids. Strong oxidizers.
Incompatible materials : Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

INFERNO® TRIO	
ACGIH	Not applicable
OSHA	Not applicable
Flucarbazone sodium (181274-17-9)	
ACGIH	Not applicable
OSHA	Not applicable
florasulam (ISO) (145701-23-1)	
ACGIH	Not applicable
OSHA	Not applicable
carfentrazone-ethyl (ISO) (128639-02-1)	
ACGIH	Not applicable

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carfentrazone-ethyl (ISO) (128639-02-1)	
OSHA	Not applicable

Surfactant 2 (trade secret)	
ACGIH	Not applicable
OSHA	Not applicable

Distillates (petroleum), hydrotreated light (64742-47-8)	
ACGIH	Not applicable
OSHA	Not applicable

Polymer/emulsifier (trade secret)	
ACGIH	Not applicable
OSHA	Not applicable

Surfactant 1 (trade secret)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Appropriate engineering controls

Appropriate engineering controls : Avoid creating mist or spray. Avoid splashing. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Avoid all unnecessary exposure.

Hand protection:

Wear suitable gloves resistant to chemical penetration. Butyl rubber. Nitrile rubber. neoprene gloves. Latex gloves. Viton

Eye protection:

Chemical goggles or safety glasses

Skin and body protection:

Wear suitable protective clothing. Long sleeved protective clothing

Respiratory protection:

In case of inadequate ventilation wear respiratory protection.

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: tan
Odour	: mild characteristic
Odour threshold	: No data available
pH	: 4.65
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 93 °C
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: No data available

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Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Vapour pressure	: No data available
Relative density	: No data available
Relative vapour density at 20 °C	: No data available
Density	: 1.0931 g/ml @ 25 °C
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 940 mPa.s @ 25 °C

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases. Strong oxidizers.

10.6. Hazardous decomposition products

None known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Inhalation; Skin and eye contact

Acute toxicity : Not classified

INFERNO® TRIO	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 inhalation rat (mg/l)	> 2.13 mg/l/4h
Flucarbazone sodium (181274-17-9)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 inhalation rat (mg/l)	> 5.13 mg/l/4h
florasulam (ISO) (145701-23-1)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 5.09 mg/l/4h
carfentrazone-ethyl (ISO) (128639-02-1)	
LD50 oral rat	5143 mg/kg
LD50 dermal rat	> 4000 mg/kg
LC50 inhalation rat (mg/l)	> 5.09 mg/l/4h

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carfentrazone-ethyl (ISO) (128639-02-1)	
ATE US (oral)	5143 mg/kg bodyweight
Surfactant 2 (trade secret)	
LD50 oral rat	> 3000 mg/kg
LD50 dermal rabbit	> 10000 mg/kg male
Distillates (petroleum), hydrotreated light (64742-47-8)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
Surfactant 1 (trade secret)	
LD50 oral rat	> 5000 mg/kg No mortality observed
LD50 dermal rabbit	> 2000 mg/kg Read-across category approach, no mortality observed

Skin corrosion/irritation	: Causes skin irritation. Irritating to rabbits on cutaneous application
Serious eye damage/irritation	: Causes eye irritation. Irritating to rabbits on ocular application
Respiratory or skin sensitisation	: May cause an allergic skin reaction. OECD Guidelines Number 429: Skin Sensitization: Local Lymph Node Assay
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified

florasulam (ISO) (145701-23-1)	
LOAEL (oral, rat, 90 days)	500 mg/kg bodyweight/day
Aspiration hazard	: Not classified
Symptoms/effects after skin contact	: Causes skin irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Causes eye irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life with long lasting effects.

Flucarbazone sodium (181274-17-9)	
LC50 fish 1	> 96.7 mg/l 96 h oncorhynchus mykiss
LC50 other aquatic organisms 1	6.4 mg/l 96 h green algae
EC50 Daphnia 1	38.8 mg/l 48 h
LC50 fish 2	> 99.3 mg/l 96 h bluehill

florasulam (ISO) (145701-23-1)	
LC50 fish 1	> 100 mg/l 96 h
EC50 Daphnia 1	> 292 mg/l 48 h
EC50 other aquatic organisms 1	0.00118 mg/l Lemna gibba
NOEC (chronic)	38.9 mg/l 21-d daphnia magna
NOEC chronic fish	119 mg/l 28-d

carfentrazone-ethyl (ISO) (128639-02-1)	
LC50 fish 1	1.6 mg/l 96 h
EC50 Daphnia 1	> 9.8 mg/l 48 h
NOEC (chronic)	0.22 mg/l 21-d crustacea
NOEC chronic fish	0.0187 mg/l 21-d

Surfactant 2 (trade secret)	
LC50 fish 1	27 mg/l 96 h
EC50 Daphnia 1	6.6 mg/l 48 h
EC50 Daphnia 2	10.3 mg/l 48 h

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Distillates (petroleum), hydrotreated light (64742-47-8)	
LC50 fish 1	25 mg/l 96 h Oncorhynchus mykiss
EC50 Daphnia 1	1.4 mg/l 48 h

12.2. Persistence and degradability

INFERNO® TRIO	
Persistence and degradability	Not established.
florasulam (ISO) (145701-23-1)	
Persistence and degradability	Not readily biodegradable. Not expected to persist.
carfentrazone-ethyl (ISO) (128639-02-1)	
Persistence and degradability	Not readily biodegradable. Not expected to persist. Hydrolyses.
Surfactant 2 (trade secret)	
Biodegradation	100 % 28 d
Surfactant 1 (trade secret)	
Persistence and degradability	Readily biodegradable.
Biodegradation	75 % 29 d

12.3. Bioaccumulative potential

INFERNO® TRIO	
Bioaccumulative potential	Not established.
Flucarbazon sodium (181274-17-9)	
Bioconcentration factor (BCF REACH)	3 (estimated)
florasulam (ISO) (145701-23-1)	
Bioconcentration factor (BCF REACH)	< 2.21
Log Kow	-1.79 - 1.11 25 °C
carfentrazone-ethyl (ISO) (128639-02-1)	
Bioaccumulative potential	Not potentially bioaccumulable.
Surfactant 1 (trade secret)	
BCF fish 1	2.41
Log Pow	> 6.2

12.4. Mobility in soil

Flucarbazon sodium (181274-17-9)	
Mobility in soil	mobile in soil; Koc = 36 (estimated)
florasulam (ISO) (145701-23-1)	
Ecology - soil	Mobile.

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Transportation of Dangerous Goods

Transport document description : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (florasulam (ISO), carfentrazone-ethyl (ISO)), 9, III

UN-No. (TDG) : UN 3082

Proper Shipping Name (Transportation of Dangerous Goods) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

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TDG Primary Hazard Classes	: 9 - Class 9 - Miscellaneous Products, Substances or Organisms
Packing group	: III - Minor Danger
TDG Special Provisions	: Small means of containment (< = 450 L) Not Regulated; Large means of containment (> 450 L) Regulated as stated

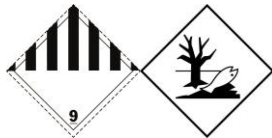
Transport by sea

IMDG

Transport hazard class(es) (IMDG)	: 9
	: 
Marine pollutant	: Yes
UN-No. (IMDG)	: 3082
Transport document description (IMDG)	: UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (florasulam (ISO), carfentrazone-ethyl (ISO)), 9, III, MARINE POLLUTANT
Class (IMDG)	: 9 - Miscellaneous dangerous substances and articles
Packing group (IMDG)	: III - substances presenting low danger
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-F

Air transport

IATA

Transport hazard class(es) (IATA)	: 9
	: 
Marine pollutant	: Yes
UN-No. (IATA)	: 3082
Transport document description (IATA)	: UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (florasulam (ISO), carfentrazone-ethyl (ISO)), 9, III
Class (IATA)	: 9 - Miscellaneous Dangerous Goods
Packing group (IATA)	: III - Minor Danger

SECTION 15: Regulatory information

CANADA

Flucarbazono sodium (181274-17-9)
Not listed on the Canadian DSL (Domestic Substances List) inventory.
florasulam (ISO) (145701-23-1)
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)
carfentrazone-ethyl (ISO) (128639-02-1)
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)
Surfactant 2 (trade secret)
Listed on the Canadian DSL (Domestic Substances List) inventory.
Polymer/emulsifier (trade secret)
Listed on the Canadian DSL (Domestic Substances List) inventory.
Surfactant 1 (trade secret)
Listed on the Canadian DSL (Domestic Substances List) inventory.

INFERNO® TRIO

Safety Data Sheet

Canada HPR

SECTION 16: Other information

Data sources : European Chemicals Agency (ECHA) Registered Substances list. Accessed at <http://echa.europa.eu/>. Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition. National Fire Protection Association. Fire Protection Guide to Hazardous Materials; 10th edition. OSHA 29CFR 1910.1200 Hazard Communication Standard. REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. TSCA Chemical Substance Inventory. Accessed at <http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html>.

Other information : None.

Full text of H-statements:

Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Eye Irrit. 2B	Serious eye damage/eye irritation, Category 2B
Flam. Liq. 3	Flammable liquids, Category 3
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H320	Causes eye irritation
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Abbreviations and acronyms:

	ACGIH (American Conference of Government Industrial Hygienists)
	ATE: Acute Toxicity Estimate
	CAS (Chemical Abstracts Service) number
	CLP: Classification, Labelling, Packaging.
	EC50: Environmental Concentration associated with a response by 50% of the test population.
	GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).
	LD50: Lethal Dose for 50% of the test population
	OSHA: Occupational Safety & Health Administration
	TSCA: Toxic Substances Control Act

Indication of changes:

Product identifier.

SDS Prepared by: The Redstone Group, LLC.
6077 Frantz Rd
Suite 206
Dublin, Ohio, USA 43016
614.923.7472
www.redstonegrp.com

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product



INFINITY HERBICIDE

GROUP 6 & 27 HERBICIDE

COMMERCIAL

Emulsifiable Concentrate



WARNING - EYE AND SKIN IRRITANT

REGISTRATION NUMBER : 28738
PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT:

Pyrasulfotole 37.5 g/L
Bromoxynil (present as mixed octanoate
and heptanoate esters) 210 g/L

Warning: Contains the allergen soy

READ THE LABEL AND BOOKLET BEFORE USING

Product Information: 1-888-283-6847

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB T2C 3G3

NET CONTENTS:
1 L - Bulk

IN CASE OF SPILLS, POISONING OR FIRE, TELEPHONE EMERGENCY RESPONSE
NUMBER 1-800-334-7577 (24 HOURS A DAY).

INFINITY Herbicide

Table of Contents:		Section Number:
GENERAL INFORMATION	The Product	1
SAFETY AND HANDLING	Precautions, Protective Clothing and Equipment, and Re-entry Restrictions	2
	First Aid and Toxicological Information	3
	Environmental Precautions	4
	Storage	5
	Disposal	6
	Notice to User	7
DIRECTIONS FOR USE	Weeds Controlled and Application Rate	8
	Crop Uses	9
	Tank Mixtures	10
	Minor Uses	11
	Application Instructions and Cautions	12
	Livestock Feeding and Pre-harvest Intervals	13
	Rotational Crop Recommendations	14
	Mixing Instructions	15
	Sprayer Cleanup	16
	Herbicide Resistance Management	17

For More Information, Contact:

Product Information: 1-888-283-6847

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB T2C 3G3

GENERAL INFORMATION

SECTION 1: THE PRODUCT

INFINITY Herbicide is a post-emergent herbicide which controls a broad spectrum of broadleaf weeds in wheat (spring, durum and winter), barley, triticale, timothy, and certain minor use crops.

SAFETY AND HANDLING

SECTION 2: PRECAUTIONS, PROTECTIVE CLOTHING AND EQUIPMENT, AND RE-ENTRY RESTRICTIONS

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Harmful or fatal if swallowed. Causes eye irritation. DO NOT get in eyes. May irritate the skin. Avoid contact with skin. Wash thoroughly with soap and water after handling and before eating, drinking or smoking. Remove and wash contaminated clothing before reuse.

When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.cropscience.bayer.ca.

DO NOT apply this product in a way that this product will contact workers or other persons, either directly or through drift. Only handlers wearing personal protective equipment may be in the area being treated during application.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Protective Clothing and Equipment:

To minimize exposure, the following precautions should be followed:

- Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. In addition, wear protective eyewear (i.e., goggles or face shield) and a chemical-resistant apron during mixing and loading activities. Gloves are not required during application within a closed cab or cockpit.
- Change contaminated clothing daily and wash before reusing.
- DO NOT handle product with bare hands. Chemical resistant gloves significantly reduce hand exposure. ALWAYS wear gloves for mixing/loading operations and when making sprayer and nozzle repairs and adjustments. DO NOT USE LEATHER OR CLOTH GLOVES.
- Rinse gloves with soap and water before removal, and wash hands thoroughly before eating, smoking or drinking.
- Clean protective equipment daily.
- Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. DO NOT reuse them.
- Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Re-entry Restriction:

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours.

SECTION 3: FIRST AID AND TOXICOLOGICAL INFORMATION

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION: Contains petroleum distillates – vomiting may cause aspiration pneumonia. Treat symptomatically.

SECTION 4: ENVIRONMENTAL PRECAUTIONS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Do not apply, drain, or flush spray equipment on or near desirable trees or other plants or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product contains a petroleum distillate which is toxic to aquatic organisms and non-target terrestrial plants. Avoid contamination of aquatic systems during applications. Do not contaminate these systems through direct application, disposal of waste, or cleaning equipment.

USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.

SECTION 5: STORAGE

Keep in original container during storage.

Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs.

May be stored at any temperature. After storage, warm to room temperature and shake well before use.

If stored for one year or longer, shake or mix well before using.

Do not use or store in or around the home.

SECTION 6: DISPOSAL

Recyclable Container Disposal:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container Disposal:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Returnable-refillable Container Disposal:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

SECTION 7: NOTICE TO USER

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label.

It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

DIRECTIONS FOR USE

SECTION 8: WEEDS CONTROLLED AND APPLICATION RATE

Application of INFINITY Herbicide at 0.83 L/ha and according to label recommendations will provide control of the following weed species:

BROADLEAF WEED ¹	RECOMMENDED STAGE
Annual sow-thistle	1 to 6-leaf stage
Chickweed	1 to 6-leaf stage
Cleavers ^{2,3}	1 to 6 whorls
Canada fleabane ^{2,4,5}	Up to 10 cm in height/diameter
Canada Thistle (Suppression only)	Up to 30 cm in height
Common ragweed	1 to 6-leaf stage
Dandelion (Suppression only) ⁶	Up to 10 cm in height and 25 cm in diameter
Flixweed	Up to 10 cm in height
Giant Ragweed ^{2,4} (Suppression only)	1 to 6 leaf stage
Hemp-nettle	1 to 6-leaf stage
Kochia	Up to 10 cm in height
Lamb's-quarters	1 to 6-leaf stage
Narrow-leaved hawk's-beard	Up to 10 cm and prior to bolting
Pale smartweed	1 to 6-leaf stage
Perennial sow-thistle (Suppression only)	1 to 6-leaf stage
Redroot pigweed	1 to 6-leaf stage
Round-leaved mallow ²	1 to 6-leaf stage
Russian thistle	Up to 10 cm in height
Shepherd's purse	1 to 6-leaf stage
Spreading atriplex ² (Suppression only)	1 to 10 leaf stage
Stinkweed	1 to 6-leaf stage
Stork's-bill (only in tank mix with 2,4-D Ester) ⁷	1 to 8-leaf stage
Volunteer canola (includes conventional and herbicide tolerant)	1 to 6-leaf stage
Volunteer soybean ²	Up to the 5 th trifoliolate leaf stage
Wild buckwheat	1 to 6-leaf stage
Wild mustard	1 to 6-leaf stage

1 Includes ALS (Group 2) resistant biotypes.

2 For control of cleavers at the 4 to 6-whorl growth stage, control of Canada fleabane, volunteer soybean, round-leaved mallow and suppression of giant ragweed and spreading atriplex, add ammonium sulphate at 500 g/ha (99%) or 1 L/ha (49% solution) or 1.25 L/ha (40% solution). If using an ammonium sulphate product with a different concentration, adjust the rate accordingly.

3 Includes indoleacetic acid (Group 4) resistant biotypes

4 Includes glyphosate resistant biotypes.

5 Remove established Canada fleabane plants prior to planting via tillage or a pre-seed burn-off treatment.

6 Includes seedlings and overwintered rosettes.

7 Control only when tank-mixed with 2,4-D Ester + AMS. Refer to Section 10 for additional directions for use

- Rainfall within 1 hour of application may reduce effectiveness.
- For best results, apply to emerged, young, actively growing weeds according to the weed stages listed.
- Under stressed conditions and/or heavy crop canopy, early application will result in improved weed control.
- Weeds growing under adverse environmental conditions such as drought will be less susceptible to INFINITY Herbicide.

SECTION 9: CROP USES

INFINITY Herbicide can be applied to the following crops when at the indicated growth stages:

CROP	GROWTH STAGE
Wheat, spring Wheat, durum Wheat, winter Barley, spring Timothy Perennial Ryegrass Bromegrasses Red Fescues Triticale	Crops may be treated when at the 1-leaf stage of growth until the flag leaf is just visible but still rolled. Apply only once per season.

- Application beyond emergence of the flag leaf may result in crop injury.
- Do not apply to a crop that is stressed by severe weather conditions, frost, low fertility, drought, water-saturated soil, disease or insect damage, as crop injury may result.
- DO NOT apply to crops undersown with legume species.

WINTER WHEAT – FALL AND SPRING APPLICATIONS IN EASTERN CANADA ONLY

Fall application:

For control of labelled fall-emerging weeds, apply 0.83 L/ha INFINITY Herbicide when weeds are emerged, young, and actively growing according to the weed stages listed in section 8.

Spring application:

For control of labelled spring-emerging weeds, apply a second application of 0.83 L/ha INFINITY Herbicide when weeds are emerged, young, and actively growing according to the weed stages listed in section 8.

Winter wheat may be treated at the 1-leaf stage of growth until the flag leaf is just visible but still rolled.

Do not apply more than 2 applications of INFINITY Herbicide per winter wheat crop.

SECTION 10: TANK MIXTURES

For control of weed species listed for INFINITY Herbicide used alone plus additional broadleaf and grassy weeds, INFINITY Herbicide may be tank mixed at 0.83 L/ha with the following herbicides. Consult the label of the tank mix partner(s) for further instructions regarding directions for use, restrictions and precautions, and always observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Crop	Tank Mix Product	Tank Mix Product Rate	Weeds Controlled	Growth Stage Timing
Wheat (Spring and Durum), Barley	Puma ¹²⁰ Super ¹	0.770 L/ha	Weed species controlled by INFINITY Herbicide used alone plus wild oats, green foxtail, yellow foxtail and barnyard grass.	Wheat (spring and durum) may be treated from the 1- to 6-leaf stage plus 3 tillers. Barley may be treated from the 1- to 5-leaf stage plus 2 tillers.
		0.385 L/ha	Weed species controlled by INFINITY Herbicide used alone plus green foxtail	Apply when the annual grass weeds are at the 1- to 6-leaf stage (up to emergence of 3 rd tiller).
Wheat (Spring and Durum), Barley	Puma Advance Herbicide ¹	1.02 L/ha	Weed species controlled by INFINITY Herbicide used alone plus wild oats, green foxtail, yellow foxtail and barnyard grass.	Wheat (spring and durum) and barley may be treated from the 1- to 6-leaf stage plus 3 tillers. Apply when the annual grass weeds are at the 1- to 6-leaf stage (up to emergence of 3 rd tiller).
Wheat (Spring and Durum)	Horizon Herbicide Tank Mix ¹	Horizon 240 EC at 230 mL/ha plus Score adjuvant at 0.8% v/v	Weed species controlled by INFINITY Herbicide used alone plus wild oat, volunteer (tame) oat, green foxtail (wild millet), yellow foxtail, barnyard grass and volunteer canary seed control.	Wheat (spring and durum) may be treated from the 2-leaf until the early flag leaf stage (total leaves including tillers). Apply when wild oats or volunteer canary seed are at the 1-6 leaf stage of growth and prior to emergence of 4 th tiller, when volunteer (tame) oats are at the 3-6 leaf stage and prior to emergence of 4 th tiller, and when green foxtail (wild millet), yellow foxtail, barnyard grass are at the 1-5 leaf stage.
Spring Wheat, Barley	Axial 100EC Herbicide ¹	Axial 100 EC at 600 mL/ha plus Adigor adjuvant at 700 mL/ha	Weed species controlled by INFINITY Herbicide used alone plus wild oats, green foxtail, yellow foxtail, volunteer oats, volunteer canary	Spring wheat and barley may be treated up to the flag leaf stage. Apply when the annual grass weeds are at the 1- to 6-leaf, prior to 4 th tiller, stage of growth.

			seed and proso millet.	
Spring Wheat, Durum Wheat, Winter Wheat, Barley, Triticale	Achieve Liquid Herbicide ¹	Achieve Liquid Herbicide at 0.5 L/ha plus Turbocharge adjuvant at 0.5% v/v	Weed species controlled by INFINITY Herbicide used alone plus wild oat, volunteer oat, green foxtail, yellow foxtail, barnyard grass and persian darnel.	Apply when wild oats and volunteer oats are at the 1-6 leaf stage of growth, green foxtail and yellow foxtail are at the 1-5 leaf stage, and barnyard grass and persian darnel are at the 1-4 leaf stage.
Spring Wheat, Durum Wheat, Winter Wheat, Barley	2,4-D Ester + AMS ²	280 g a.e./ha (e.g., 425 mL/ha of a 2,4-D Ester 700 ³) + 1.25 L/ha (40% solution)	Weed species controlled by INFINITY Herbicide used alone plus stork's bill.	Spring wheat, durum wheat and barley may be treated from the 4-leaf stage of growth until the flag leaf is just visible but still rolled. Winter wheat may be treated in the spring from early tillering until the flag leaf is just visible but still rolled. Apply when stork's-bill is at the 1- to 8-leaf stage of growth.
Spring Wheat, Durum Wheat, Barley	Lontrel 360 ¹	0.42 L/ha	Weed species controlled by INFINITY Herbicide used alone plus Canada thistle (top growth), vetch (<i>Vicia</i> spp.), and alsike clover.	Wheat (spring and durum) and barley may be treated from the 3-leaf until the flag leaf emergence stages of growth.
Spring Wheat, Durum Wheat, Barley	FX Herbicide ^{4,5}	0.4 L/ha	Weed species controlled by INFINITY Herbicide used alone plus volunteer soybean, round-leaved mallow and improved control of cleavers, kochia, volunteer flax, chickweed and hempnettle.	Wheat (spring and durum) and barley may be treated from the 2-leaf crop growth stage until the flag leaf is just visible but still rolled. Weed growth stages: Volunteer Soybean ⁶ : up to the 5 th trifoliolate leaf stage Round-leaved mallow: 1- to 6-leaf stage Cleavers: 1 to 9 whorls Kochia and volunteer flax: up to 15 cm in height Chickweed, hempnettle: 1- to 8-leaf stage.

Spring Wheat, Durum Wheat	FX Herbicide ^{4,5} + Varro Herbicide	0.4 L/ha + 0.5 L/ha	Weed species controlled by INFINITY and FX Herbicide tank-mix plus annual grasses and broadleaf weeds listed on the Varro Herbicide label.	Wheat (spring and durum) may be treated when plants have 2-6 leaves on main stem, plus 3 tillers but prior to jointing (presence of first node). Refer to individual herbicide product labels for respective weed growth stages.
Spring Wheat, Barley	FX Herbicide ^{4,5} + Axial Herbicide	0.4 L/ha + 1.2 L/ha	Weed species controlled by INFINITY and FX Herbicide tank-mix plus wild oats, green foxtail, yellow foxtail, volunteer oats, volunteer canary seed and proso millet.	Spring wheat and barley may be treated from the 2-leaf crop growth stage until the flag leaf is just visible but still rolled. Refer to individual herbicide product labels for respective weed growth stages.
Spring Wheat, Durum Wheat, Barley	FX Herbicide ^{4,5} + Puma Advance Herbicide	0.4 L/ha + 1.02 L/ha	Weed species controlled by INFINITY and FX Herbicide tank-mix plus wild oats, green foxtail, yellow foxtail and barnyard grass.	Wheat (spring and durum) and barley may be treated from the 2- to 6-leaf stage plus 3 tillers. Refer to individual herbicide product labels for respective weed growth stages.
Spring Wheat, Durum Wheat	FX Herbicide ^{4,5} + Horizon NG Herbicide	0.4 L/ha + 930 mL/ha	Weed species controlled by INFINITY and FX Herbicide tank-mix plus wild oats, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass, volunteer canary seed.	Wheat (spring and durum) may be treated from the 2-leaf crop growth stage until the flag leaf is just visible but still rolled. Refer to individual herbicide product labels for respective weed growth stages.

Spring Wheat, Durum Wheat, Barley	FX Herbicide ^{4,5} + Achieve Liquid Herbicide	0.4 L/ha + Achieve Liquid Herbicide at 0.5 L/ha plus Turbocharge Adjuvant, or Turbocharge EST Adjuvant, or Turbocharge D Adjuvant or Intake Adjuvant at 0.5% v/v (0.5 L per 100 L of spray mixture)	Weed species controlled by INFINITY and FX Herbicide tank-mix plus wild oat, volunteer (tame) oats, green foxtail, yellow foxtail, barnyard grass and persian darnel.	Wheat (spring and durum) and barley may be treated from the 2-leaf crop growth stage until the flag leaf is just visible but still rolled. Refer to individual herbicide product labels for respective weed growth stages.
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1. For additional control of cleavers at the 4 to 6-whorl growth stage, add ammonium sulphate at 500 g/ha (99%) or 1 L/ha (49% solution) or 1.25 L/ha (40% solution). If using an ammonium sulphate product with a different concentration, adjust the rate accordingly.
2. If using an ammonium sulphate (AMS) product with a different concentration, adjust the rate accordingly (e.g., add ammonium sulphate at 500 g/ha (99%) or 1 L/ha (49% solution) or 1.25 L/ha (40% solution)).
3. 2,4-D Ester 700 contains 660 g a.e./L)
4. Ammonium sulphate at 500 g/ha (99%) or 1 L/ha (49% solution) or 1.25 L/ha (40% solution) may be added for improved broadleaf weed control. If using an ammonium sulphate product with a different concentration, adjust the rate accordingly.
5. Includes ALS (Group 2) resistant biotypes.
6. For control of volunteer soybean up to the 9th trifoliolate leaf stage, add ammonium sulphate at 500 g/ha (99%) or 1 L/ha (49% solution) or 1.25 L/ha (40% solution). If using an ammonium sulphate product with a different concentration, adjust the rate accordingly.

SECTION 11: Minor Uses

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS (BELOW): The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Bayer CropScience and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Bayer CropScience itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Bayer CropScience harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

GRASSES, GROWN FOR FORAGE OR SEED PRODUCTION

CROPS	INFINITY RATE	WEEDS CONTROLLED	USE INSTRUCTIONS
<p>Perennial ryegrass (seedling and established)</p> <p>Red Fescue <i>including</i> Creeping Red Fescue (seedling and established)</p> <p>Bromegrass <i>including</i> Meadow Bromegrass, Smooth Bromegrass (seedling and established)</p> <p>Timothy (seedling and established)</p>	0.83 L/ha	Weed species listed under Section 8.	<ul style="list-style-type: none"> • Apply INFINITY Herbicide when the crop is at the 1-leaf stage of growth until the flag leaf is just visible but still rolled, and when target weed species are at the growth stages listed under Section 8. • Apply only once per season. • Application beyond emergence of the flag leaf may result in crop injury. • Do not apply to a crop that is stressed by severe weather conditions, frost, low fertility, drought, water-saturated soil, disease or insect damage, as crop injury may result. • Do not apply to crops undersown with legume species. • Do not graze the treated crops within 7 days, or harvest for hay within 30 days, of INFINITY Herbicide application. • Refer to Sections 8 and 12 for additional use information and cautions.

* For additional control of cleavers at the 4 to 6-whorl growth stage, add ammonium sulphate at 500 g/ha (99%) or 1 L/ha (49% solution) or 1.25 L/ha (40% solution). If using an ammonium sulphate product with a different concentration, adjust the rate accordingly.

SECTION 12: APPLICATION INSTRUCTIONS AND CAUTIONS

- For best results, apply to emerged, young, actively growing weeds.
- Under cool and/or dry conditions activity may be reduced or delayed. Weed control may also be reduced if application is made when weeds are dust covered or in the presence of heavy dew, fog, or mist/rain.
- If crop is under stress due to abnormal environmental conditions, delay application until stress passes and after both crop and weeds have resumed active growth.
- Follow directions under Sections 8, 9 and 10 for the correct rate and timing of application.
- Avoid contact with desirable plants or crops either from direct application or from spray drift as severe damage may occur.
- As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.
- **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

BUFFER ZONES:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of Application	Crop		Buffer Zones (metres) Required for the Protection of:		
			Freshwater Habitat of Depths:		Terrestrial Habitat
			Less than 1 m	Greater than 1 m	
Field Sprayer*	Wheat (spring, durum, winter), barley, triticale, timothy), perennial ryegrass, red fescues, brome-grasses		1	1	5
Aerial	Wheat (spring, durum, winter), barley, triticale, timothy, perennial ryegrass, red fescues, brome-grasses	Fixed wing	10	1	375
		Rotary wing	10	1	225

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy or ground, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy or ground, the labelled buffer zone can be reduced by 30%.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

FIELD SPRAYER APPLICATION.

- **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.
- Application of INFINITY Herbicide should be made using a minimum of 46.8 litres of water per hectare, at a pressure of 275 kPa, or 310 kPa if using check valves, and at a ground speed of 6-8 kph.
- When tank mixing INFINITY Herbicide with a tank mix partner, ensure you read the tank mix partner label for minimum water recommendations.
- The use of 80° or 110° flat fan nozzles is recommended for optimum spray coverage.
- Do not use flood jet nozzles, controlled droplet application equipment or Sprafoil® equipment.
- Uniform, thorough coverage is important to obtain consistent weed control. Higher water volumes should be used under dense crop and weed canopies to ensure thorough coverage of the target weeds.
- Avoid overlapping; shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from over-application.

AERIAL APPLICATION

- **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.
- Apply INFINITY Herbicide used alone or in tank mixes (ONLY with the recommended tank mix partners that are registered for aerial use) in no less than 28.1 litres of water per hectare at a pressure no less than 300 kPa.
- Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.
- Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended on this label.
- Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Aerial Use Precautions

- Read and understand the entire label before opening this product. If you have questions, call Bayer at 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.
- Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.
- Do not apply to terrain where there is a potential for surface run-off to enter aquatic systems.
- Do not apply if rain is expected within 1 hour after spraying. If tank mixing, consult the tank mix partner label and respect the most restrictive interval.

Aerial Operator Precautions:

- Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed

chemicals with a closed system is permitted.

- It is desirable that the pilots have communication capabilities at each treatment site at the time of application.
- The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.
- All personnel on the job site must wash hands and face thoroughly before eating and drinking.
- Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions:

- Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.

SECTION 13: LIVESTOCK FEEDING AND PRE-HARVEST INTERVALS

DO NOT graze treated perennial ryegrass, red fescue, bromegrass or timothy crops within 7 days of application or harvest for hay within 30 days of application.
 DO NOT graze treated wheat, triticale and barley or cut for forage or hay within 25 days of application.
 DO NOT harvest wheat or triticale for grain or straw within 50 days of application.
 DO NOT harvest barley for grain or straw within 45 days of application.
 If tank mixing, always respect the maximum pre-harvest interval stated on the labels of all the tank mix products.

SECTION 14: ROTATIONAL CROP RECOMMENDATIONS

Only the following crops have been field tested to indicate they may be safely planted at the prescribed interval after an application of INFINITY Herbicide. To avoid the possibility of injury to subsequent crops after an application of the recommended rate of INFINITY Herbicide, follow the crops and replanting interval which appear on this label, and if tank mixing on the label of the tank mix partner, and always observe the most restrictive replanting interval. A field bioassay must be conducted the year prior to growing any other crop of interest to confirm crop safety.

CROP	REPLANTING INTERVAL
Alfalfa	10 months
Barley, spring	10 months
Canaryseed	10 months
Canola	10 months
Corn, field*	10 months
Flax, including low linolenic acid varieties	10 months
Lentils	22 months
Peas, field**	10 months
Potatoes	10 months
Soybeans*	10 months
Sunflower	10 months
Tame oats	10 months
Tomatoes*	10 months
Wheat, spring and durum	10 months

* Eastern Canada and Manitoba only.

** Field peas may be grown the year following INFINITY Herbicide application in all Black, Grey-Wooded and

Dark Brown soil zones. **DO NOT** plant field peas the year following an INFINITY Herbicide application in the Brown soil zone where organic matter content is below 2.5% and where soil pH is above 7.5.

SECTION 15: MIXING INSTRUCTIONS

INFINITY Herbicide must be applied with properly calibrated and clean sprayer equipment. INFINITY Herbicide is specially formulated to mix readily in water. Prior to adding INFINITY Herbicide to the spray tank, ensure that the spray tank is thoroughly clean (see Section 16 “Sprayer Cleanup”).

1. Fill the spray tank $\frac{1}{4}$ to $\frac{1}{2}$ full with clean water and begin agitation or bypass.
2. Add the appropriate rate of INFINITY Herbicide, as specified under Section 8, directly to the spray tank. Maintain sufficient agitation during both mixing and application. Add tank mix partners, if desired.
3. Fill the spray tank with balance of water required.
4. Maintain sufficient agitation during both mixing and application of INFINITY Herbicide.

INFINITY Herbicide may settle if left standing without agitation. If the spray solution is allowed to stand for one hour or more, re-agitate the spray solution for a minimum of 10 minutes before application.

SECTION 16: SPRAYER CLEANUP

Before and after using INFINITY Herbicide always complete a thorough cleaning of the spray tank, lines and filters. The following procedures are recommended:

1. Drain the tank completely, and then wash out tank, boom and hoses with clean water. Drain again.
2. Half fill the tank with clean water and add ammonia (i.e., 3% domestic ammonia solution) at a dilution rate of 1% (i.e., 1 litre of domestic ammonia for every 100 litres of rinsate). Complete filling of the tank with water. Agitate/recirculate and flush through boom and hoses. Leave agitation on for 10 minutes. Drain tank completely.
3. Repeat step 2.
4. Remove nozzles and screens and soak them in a 1% ammonia solution. Inspect nozzles and screens and remove visible residues.
5. Flush tank, boom, and hoses with clean water.
6. Inspect tank for visible residues. If present, repeat step 2.
7. Dispose of rinsings in accordance with provincial regulations.

SECTION 17: HERBICIDE RESISTANCE MANAGEMENT

For resistance management, INFINITY Herbicide is a Group 6 and 27 herbicide. Any weed population may contain or develop plants naturally resistant to INFINITY Herbicide and other Group 6 and 27 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

1. Where possible, rotate the use of INFINITY Herbicide or other Group 6 and 27 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
2. Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
3. Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
4. Monitor weed populations after herbicide application for signs of resistance development. (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
5. Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
6. Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
7. For further information or to report suspected resistance contact Bayer via internet at www.cropscience.bayer.ca or telephone at 1-888-283-6847.

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name INFINITY® HERBICIDE
Product code (UVP) 79002149
SDS Number 102000011554
PCP Registration No. 28738

Relevant identified uses of the substance or mixture and uses advised against

Use Herbicide
Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada
Responsible Department Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.
Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

Aspiration hazard: Category 1

Carcinogenicity: Category 2

Reproductive toxicity: Category 2

Eye irritation: Category 2B

Acute toxicity(Oral): Category 4

Flammable liquids: Category 4

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Signal word: Danger

Hazard statements

May be fatal if swallowed and enters airways.
Suspected of causing cancer.
Suspected of damaging fertility or the unborn child.
Causes eye irritation.
Harmful if swallowed.
Combustible liquid

Precautionary statements

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
IF SWALLOWED: Immediately call a POISON CENTER/doctor/ physician.
Do NOT induce vomiting.
Rinse mouth.
IF exposed or concerned: Get medical advice/ attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Store locked up.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Pyrasulfotole	365400-11-9	3.3
Bromoxynil octanoate	1689-99-2	13.4
Bromoxynil heptanoate	56634-95-8	12.9
Mefenpyr-diethyl	135590-91-9	0.83
Naphthalene	91-20-3	5.09

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SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms Aspiration may cause pulmonary oedema and pneumonitis.

Indication of any immediate medical attention and special treatment needed

Risks Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard.

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Water, Alcohol-resistant foam, Dry powder, Carbon dioxide (CO₂)

Unsuitable None known.

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

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Further information	Evacuate personnel to safe areas. Avoid contact with spilled product or contaminated surfaces. Keep out of smoke. Fight fire from upwind position. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point	90 °C
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment. Evacuate and isolate spill area.

Methods and materials for containment and cleaning up

Methods for cleaning up Dike area to prevent runoff. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Contaminated soil may have to be removed and disposed. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate exhaust ventilation. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

Advice on protection against fire and explosion Keep away from heat and sources of ignition.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

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Remove Personal Protective Equipment (PPE) immediately after handling this product. Remove and wash contaminated gloves, including the inside, before re-use. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container. Store in a place accessible by authorized persons only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Pyrasulfotole	365400-11-9	0.3 mg/m ³ (TWA)		OES BCS*
Bromoxynil octanoate	1689-99-2	0.21 mg/m ³ (SK-SEN)		OES BCS*
Mefenpyr-diethyl	135590-91-9	10 mg/m ³ (TWA)		OES BCS*
Naphthalene	91-20-3	52 mg/m ³ /10 ppm (TWA)	07 2009	CAD AB OEL
Naphthalene	91-20-3	79 mg/m ³ /15 ppm (STEL)	07 2009	CAD AB OEL
Naphthalene	91-20-3	10 ppm (TWA)	09 2011	CAD BC OEL
Naphthalene	91-20-3	15 ppm (STEL)	09 2011	CAD BC OEL
Naphthalene	91-20-3	10 ppm (TWA)	03 2011	CAD MB OEL
Naphthalene	91-20-3	15 ppm (STEV)	11 2010	CAD ON OEL
Naphthalene	91-20-3	10 ppm (TWA EV)	11 2010	CAD ON OEL
Naphthalene	91-20-3	10 ppm (8 HR ACL)	05 2009	CAD SK OEL
Naphthalene	91-20-3	15 ppm	05 2009	CAD SK

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		(15 MIN ACL)		OEL
Naphthalene	91-20-3	79 mg/m ³ /15 ppm (STEL)	11 2011	OEL (QUE)
Naphthalene	91-20-3	52 mg/m ³ /10 ppm (TWA)	11 2011	OEL (QUE)
Naphthalene	91-20-3	10 ppm (TLV)		OES BCS*

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection

Chemical resistant nitrile rubber gloves

Eye protection

Tightly fitting safety goggles

Skin and body protection

Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures

Use only in area provided with appropriate exhaust ventilation. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	beige to brown
Physical State	Liquid clear
Odor	aromatic solvent-like
Odour Threshold	No data available
pH	ca. 3.9 at 10 %
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	1.14 g/cm ³ at 20 °C
Evaporation rate	No data available

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Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	No data available
Solubility in other solvents	No data available
Minimum Ignition Energy	Not applicable
Decomposition temperature	Not applicable
Partition coefficient: n-octanol/water	No data available
Viscosity	19.8 mPa.s at 25 °C
Flash point	90 °C
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	Not applicable
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	No data available
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Skin contact, Ingestion
Immediate Effects	
Eye	Causes eye irritation.
Skin	May cause skin irritation.
Ingestion	Harmful or fatal if swallowed.

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Inhalation Harmful if inhaled.

Information on toxicological effects

Acute oral toxicity LD50 (female Rat) > 300 - < 2,000 mg/kg

Acute inhalation toxicity LC50 (male/female combined Rat) > 5 mg/l
Exposure time: 4 h
Determined in the form of liquid aerosol.
Highest attainable concentration.

LC50 (male/female combined Rat) > 20 mg/l
Exposure time: 1 h
Determined in the form of liquid aerosol.
Extrapolated from the 4 hr LC50.

Acute dermal toxicity LD50 (male/female combined Rat) > 4,000 mg/kg

Skin irritation Mild skin irritation. (Rabbit)

Eye irritation Moderate eye irritation. (Rabbit)

Sensitisation Non-sensitizing. (Guinea pig)

Assessment repeated dose toxicity

Pyrasulfotole did not cause specific target organ toxicity in experimental animal studies.
Bromoxynil octanoate caused specific target organ toxicity in experimental animal studies in the following organ(s): Liver. The observed effects do not appear to be relevant for humans.
Bromoxynil heptanoate caused specific target organ toxicity in experimental animal studies in the following organ(s): Liver. The observed effects do not appear to be relevant for humans.
Mefenpyr-diethyl did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Pyrasulfotole was not genotoxic in a battery of in vitro and in vivo tests.
Bromoxynil octanoate was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Bromoxynil heptanoate was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Mefenpyr-diethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Pyrasulfotole caused at high dose levels an increased incidence of tumours in the following organ(s): Cornea, urinary bladder. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans.
Bromoxynil octanoate caused at high dose levels an increased incidence of tumours in the following organ(s): Liver. The mechanism of tumour formation is not considered to be relevant to man.
Bromoxynil heptanoate caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver. The mechanism of tumour formation is not considered to be relevant to man.
Mefenpyr-diethyl was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

Naphthalene 91-20-3 Group A3

NTP

Naphthalene 91-20-3

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IARC

Naphthalene

91-20-3

Overall evaluation: 2B

OSHA

None.

Assessment toxicity to reproduction

Pyrasulfotole did not cause reproductive toxicity in a two-generation study in rats.
Bromoxynil octanoate did not cause reproductive toxicity in a two-generation study in rats.
Bromoxynil heptanoate did not cause reproductive toxicity in a two-generation study in rats.
Mefenpyr-diethyl did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Pyrasulfotole did not cause developmental toxicity in rats and rabbits.
Bromoxynil octanoate caused a delayed foetal growth, an increased incidence of non-specific malformations. Bromoxynil octanoate caused developmental toxicity only at dose levels toxic to the dams.
Bromoxynil heptanoate caused developmental toxicity only at dose levels toxic to the dams.
Bromoxynil heptanoate caused a delayed foetal growth, an increased incidence of non-specific malformations.
Mefenpyr-diethyl caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Mefenpyr-diethyl are related to maternal toxicity.

Further information

Acute toxicity studies have been bridged from a similar formulation(s).
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish

LC50 (Lepomis macrochirus (Bluegill sunfish)) 0.029 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient bromoxynil octanoate.

LC50 (Lepomis macrochirus (Bluegill sunfish)) 0.029 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient bromoxynil heptanoate.

Toxicity to aquatic invertebrates

EC50 (Daphnia magna (Water flea)) 0.046 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient bromoxynil octanoate.

EC50 (Daphnia magna (Water flea)) 0.031 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient bromoxynil heptanoate.

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Toxicity to aquatic plants	EC50 (Navicula pelliculosa (Freshwater diatom)) 0.043 mg/l Exposure time: 120 h The value mentioned relates to the active ingredient bromoxynil octanoate. EC50 (Lemna gibba (gibbous duckweed)) 0.073 mg/l The value mentioned relates to the active ingredient bromoxynil octanoate.
Biodegradability	Pyrasulfotole: Not rapidly biodegradable Bromoxynil octanoate: Not rapidly biodegradable Bromoxynil heptanoate: Not rapidly biodegradable Mefenpyr-diethyl: Not rapidly biodegradable
Koc	Pyrasulfotole: Koc: 20 - 213 Bromoxynil octanoate: Koc: 639 Bromoxynil heptanoate: Koc: ca. 600 Mefenpyr-diethyl: Koc: 625
Bioaccumulation	Pyrasulfotole: Does not bioaccumulate. Bromoxynil octanoate: Bioconcentration factor (BCF) 230 Does not bioaccumulate. Bromoxynil heptanoate: No data available, Does not bioaccumulate. Mefenpyr-diethyl: Bioconcentration factor (BCF) 232 Does not bioaccumulate.
Mobility in soil	Pyrasulfotole: Moderately mobile in soils Bromoxynil octanoate: Slightly mobile in soils Bromoxynil heptanoate: Slightly mobile in soils Mefenpyr-diethyl: Slightly mobile in soils
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift. Drift or runoff from treated areas may adversely affect non-target plants.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product Dispose in accordance with all local, state/provincial and federal regulations.
Do not contaminate water, food, or feed by disposal.

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Never place unused product down any indoor or outdoor drain.

Contaminated packaging

Do not re-use empty containers.
Triple rinse containers.
Puncture container to avoid re-use.
Follow advice on product label and/or leaflet.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	3082
Labels	9
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BROMOXYNIL, PETROLEUM DISTILLATES)

49CFR

NA-Number	1993
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	COMBUSTIBLE LIQUID, N.O.S. (BROMOXYNIL, PETROLEUM DISTILLATES, NAPHTHALENE)
RQ	Reportable Quantity is reached with 1,964 lb of product.

IMDG

UN number	3082
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BROMOXYNIL, PETROLEUM DISTILLATES SOLUTION)

IATA

UN number	3082
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BROMOXYNIL, PETROLEUM DISTILLATES SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

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Further Information Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1. This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.

SECTION 15: REGULATORY INFORMATION

PCP Registration No. 28738

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

Bromoxynil octanoate 1689-99-2

Naphthalene 91-20-3

US States Regulatory Reporting

CA Prop65

This product contains a chemical known to the State of California to cause cancer.

Naphthalene 91-20-3

This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Bromoxynil octanoate 1689-99-2 Developmental toxin.

US State Right-To-Know Ingredients

Bromoxynil octanoate 1689-99-2 NJ, RI
Naphthalene 91-20-3 CA, CT, IL, MN, NJ, RI

Canadian Regulations

Canadian Domestic Substance List

Naphthalene 91-20-3

Environmental

CERCLA

Naphthalene 91-20-3 100 lbs

Clean Water Section 307 Priority Pollutants

Naphthalene 91-20-3

Safe Drinking Water Act Maximum Contaminant Levels

Naphthalene 91-20-3

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SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
CAS-Nr.	Chemical Abstracts Service number
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	US. IARC Monographs on Occupational Exposures to Chemical Agents
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 2 Instability - 1 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 2 Physical Hazard - 1 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current Canadian WHMIS standard (WHMIS 2015).

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 03/28/2016

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

GROUP	3	4	11	FUNGICIDE
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INSURE® CEREAL
Fungicide Seed Treatment

SUSPENSION

For seed treatment use in barley, oat, rye, triticale and wheat (all types)

COMMERCIAL (AGRICULTURAL)

GUARANTEE:

Pyraclostrobin 17 g/L
Triticonazole 17 g/L
Metalaxyl 10 g/L

Contains 1,2-benzisothiazolin-3-one at 0.005% and 2-methyl-4-isothiazolin-3-one at 0.005%, as preservatives

OR

Contains 1,2-benzisothiazolin-3-one at 0.0085% and 2-methyl-4-isothiazolin-3-one at 0.0085%, as preservatives

OR

Contains 1,2-benzisothiazolin-3-one at 0.017%, 2-methyl-4-isothiazolin-3-one at 0.0095%, 2-bromo-2-nitropropane-1,3-diol at 0.024%, 5-chloro-2-methyl-4-isothiazolin-3-one at 0.0011%, as preservatives

Warning, contains the allergen soy

POTENTIAL SKIN SENSITIZER

No open transfer is permitted for commercial seed treatment of barley, wheat, oats, rye and triticale.

REGISTRATION NO. 30685

PEST CONTROL PRODUCTS ACT

READ THE LABEL BEFORE USING

KEEP OUT OF REACH OF CHILDREN

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT,
1-800-454-2673**

NET CONTENTS: 0.1 L - Bulk

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, Ontario
L5R 4H1
1-877-371-2273

INSURE is a registered trade-mark of BASF SE, used with permission by BASF Canada Inc.

GENERAL INFORMATION

INSURE CEREAL is a ready-to-use broad spectrum fungicide seed treatment in a water-based formulation that provides preventive seed and seedling protection against seed-, soil-borne and seedling diseases in barley, oat, rye, triticale and wheat (all types). Make all applications according to the use directions in this label.

INSURE CEREAL Seed Treatment Fungicide is active against a wide range of diseases caused by *Fusarium* spp., *Pythium* spp., and *Cochliobolus sativus* and is also active against a wide range of smuts and bunt.

DIRECTIONS FOR USE

For use on farm and on closed transfer commercial seed treatment facilities. Closed transfer includes closed mixing, loading, calibrating and closed treatment equipment.

Apply **INSURE CEREAL** using standard slurry, gravity flow or mist-type seed treatment application equipment. Thorough seed coverage will offer the best protection of the seed from seed-, soil-borne, and seedling diseases. When used at the recommended rate of 300 mL/100 kg seed, no additional dyes or dilutions with water are needed unless recommended by the manufacturer of the seed treatment application equipment/machines. If so, increase the use rate proportionally to the dilution rate (e.g. add 100 mL of water to 300 mL of **INSURE CEREAL**, then apply at 400 mL/100 kg seed). Please consult the seed treatment application equipment manufacturer in question for further directions.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

CROP SPECIFIC RECOMMENDATIONS FOR SEED TREATMENT

Culture	Target Disease	Product use rate in mL/ 100 kg seed
Barley Oats Rye Triticale Wheat (all types)	<p><u>Diseases Controlled :</u> Seed Rot / Pre-emergence Damping-off caused by <i>Fusarium</i> spp., <i>Cochliobolus sativus</i>, and <i>Pythium</i> spp. Post-emergence Damping-off caused by <i>Pythium</i> spp. Seedling Blight caused by <i>Fusarium</i> spp. and <i>Pythium</i> spp. Root Rot caused by <i>Fusarium</i> spp. and <i>Pythium</i> spp. Loose Smut (<i>Ustilago tritici</i>) - Rye, Triticale, Wheat Common Bunt (<i>Tilletia tritici</i>, <i>T. laevis</i>) - Rye, Triticale, Wheat True Loose Smut (<i>Ustilago nuda</i>) - Barley Covered Smut (<i>Ustilago hordei</i>) - Barley False Loose Smut (<i>Ustilago nigra</i>) - Barley Loose Smut (<i>Ustilago avenae</i>) - Oat Covered Smut (<i>Ustilago koller</i>) - Oat</p> <p><u>Diseases Suppressed :</u> Seedling blight caused by <i>Cochliobolus sativus</i> Root rot caused by <i>Cochliobolus sativus</i></p>	300

USE RESTRICTIONS

- Do not use treated seed for food, feed or oil processing.
- Do not store **INSURE CEREAL** near feed or foodstuffs.
- Do not contaminate feed or foodstuffs.
- Do not apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.
- Do not contaminate irrigation or drinking water or aquatic habitats by cleaning of equipment or disposal of wastes.
- **INSURE CEREAL** contains sufficient pigment to conspicuously color and coat treated seed. Regulations pertaining to the coloration of treated seed enforced under the "Seeds Act" must be strictly adhered to when using this product.
- Thoroughly clean auger after handling treated seed before using same auger for handling commercial or feed grains.

SEED LABELLING

TREATED SEED MUST BE LABELLED AS FOLLOWS:

"This seed has been treated with **INSURE CEREAL** containing fungicides pyraclostrobin, triticonazole and metalaxyl. Workers handling or planting treated seed must wear long-sleeved shirt, long pants, chemical-resistant gloves, shoes and socks, and respiratory protection (i.e. NIOSH/MSHA/BHSE approved respirator or fresh air hood). Respiratory protection is not required when workers are in a closed cab tractor. A closed cab is a chemical resistant barrier that completely surrounds the occupant of the cab and prevents contact with the pesticide or treated surfaces outside the cab. DO NOT use for food, feed or oil processing. Store away from feed and food stuff.

Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface."

SEED STORAGE

Treatment of highly mechanically damaged seed, seed known to be of low vigour and poor quality, or seed where the storage conditions were poor (high humidity in storage, moisture within grain storage facility, or grain sitting on the ground) may result in reduced germination and/or reduction of seed and seedling vigour. Treat and conduct germination tests on a small test sample of seed before treating commercial quantities with **INSURE CEREAL**. Due to seed quality and seed storage conditions beyond the control of BASF Canada, BASF Canada makes no claims or guarantees as to germination of carry-over seed treated with **INSURE CEREAL**.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

Mode of Action

INSURE CEREAL contains three active ingredients with distinct modes of action. Pyraclostrobin is classified as a **Target Site of Action Group 11** fungicide. Triconazole is classified as a **Target Site of Action Group 3** fungicide. Metalaxyl is classified as a **Target Site of Action Group 4** fungicide. Due to the minimal amounts of **INSURE CEREAL** applied to the seed that relocate to the upper parts of the plant and the multiple modes of action, the potential for development of resistance is low.

Resistance Management

INSURE CEREAL contains three active ingredients with three distinct modes of action. Any fungal population may contain individuals naturally resistant to **INSURE CEREAL**, and other Group 3, 4 and 11 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

The following recommendations may be considered to delay the development of fungicide resistance:

1. **Applications:** Adhere to label instructions for each product regarding the consecutive use of **INSURE CEREAL** or other target site of action Group 3, 4 and/or 11 fungicides that have a similar site of action on the same pathogens.
2. **IPM:** **INSURE CEREAL** should be integrated into an overall disease and pest management program. Cultural practices known to reduce disease development should be followed. Consult your local extension specialist, certified crop advisor and/or BASF for additional IPM strategies established for your area. **INSURE CEREAL** may be used in Agricultural Extension advisory (disease forecasting) programs, which recommend application timing based on environmental factors favourable for disease development.
3. **Monitor:** Monitor efficacy of all fungicides used in the disease management program against the targeted pathogen and record other factors that may influence fungicide performance and/or disease development.
4. **Reporting:** If a Group 3, 4 and/or 11 target site fungicide, such as **INSURE CEREAL**, appears to be less or no longer effective against a pathogen that it previously controlled or suppressed, contact a BASF-representative at 1-877-371-2273 or at www.agsolutions.ca, local extension specialist, or certified crop advisor to assist in determining the cause of reduced performance.

ENVIRONMENTAL HAZARDS

Ensure proper soil incorporation of the seeds. **DO NOT** feed treated seed to, or otherwise expose, wildlife or domestic birds. If treated seed is spilled outdoors or in areas accessible to birds, promptly clean up or bury to prevent ingestion. Ensure proper disposal of any surplus treated seed not intended for later planting. **DO NOT** contaminate domestic or irrigation water supplies, lakes, streams, ponds or any body of water with the chemical, used containers,

treated seed or bags, which have held treated seed. **DO NOT** contaminate water by cleaning of equipment or disposal of wastes. Unused or leftover treated seed should not be stored where there is a chance of it becoming mixed with untreated seed. Toxic to aquatic organisms.

The use of this product may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) or the water table is shallow. To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. compacted or fine-textured soils such as clay).

Avoid application of this product when heavy rain is forecast.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. DO NOT apply in a way that this product will contact workers or other persons, either directly or through drift. Only handlers (mixers, loaders and applicators) wearing personal protective equipment may be in the area when seed is being treated or bagged.
3. Workers mixing, loading, treating, cleaning-up, or maintaining and repairing seed treatment equipment, bagging, sewing, stacking, involved in handling treated seed, or when transferring seed to a storage bin, must wear coveralls over long-sleeved shirt, long pants, chemical-resistant gloves, head gear, shoes and socks.
4. Workers planting treated seed must wear long-sleeved shirt, long pants, chemical-resistant gloves, shoes and socks.
5. Workers bagging, sewing bags of treated seed, transferring seed to storage bins, handling and planting treated seed must also wear respiratory protection (i.e. NIOSH/MSHA/BHSE approved respirator or fresh air hood). Respiratory protection is not required when workers are in a closed cab tractor. A closed cab is a chemical resistant barrier that completely surrounds the occupant of the cab and prevents contact with the pesticide or treated surfaces outside the cab.
6. Potential skin sensitizer. Wash thoroughly after handling and before eating, drinking or smoking.
7. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
8. If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

The patient should be treated symptomatically.

STORAGE

1. Store in original tightly closed container and the ideal storage temperature is above freezing and below 30°C. **INSURE CEREAL** freezes at -4°C and if frozen agitate prior to use.
2. To prevent contamination store this product away from food and feed.
3. Store in cool, dry, locked, well-ventilated area without floor drain.

DISPOSAL

For Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for any further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For Non-Returnable Containers

1. Triple or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

For Returnable-Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

Safety Data Sheet

INSURE CEREAL

Revision date : 2015/11/24
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1. Identification

Product identifier used on the label

INSURE CEREAL

Recommended use of the chemical and restriction on use

Recommended use*: fungicide

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Contact address:
BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1
CANADA
Telephone: +1 289 360-1300

Emergency telephone number

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

Other means of identification

PCP # 30685, 30684
Synonyms: pyraclostrobin

2. Hazards Identification

According to Controlled Products Regulations (CPR) (SOR/88-66)

Emergency overview

Contains 1,2-benzisothiazolin-3-one as a preservative.
Contains 2-methyl-4-isothiazolin-3-one as a preservative.
Contains 2-bromo-2-nitropropane-1,3-diol as a preservative.
Contains 5-chloro-2-methyl-4-isothiazolin-3-one as a preservative.
Contains the allergen soy.
Potential skin sensitizer.

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KEEP OUT OF REACH OF CHILDREN.
Wash thoroughly after handling.

3. Composition / Information on Ingredients

According to Controlled Products Regulations (CPR) (SOR/88-66)

Not WHMIS controlled.

4. First-Aid Measures

Description of first aid measures

General advice:

Remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

If on skin:

Wash thoroughly with soap and water.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

If swallowed:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:

water spray, dry powder, foam, carbon dioxide

Special hazards arising from the substance or mixture

Hazards during fire-fighting:

carbon monoxide, carbon dioxide, nitrogen oxides, chlorine compounds, sulfur oxides
The substances/groups of substances mentioned can be released in case of fire.

Safety Data Sheet

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Advice for fire-fighters

Protective equipment for fire-fighting:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Keep containers cool by spraying with water if exposed to fire. In case of fire and/or explosion do not breathe fumes. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do not breathe vapour/spray. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

Environmental precautions

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).

For large amounts: Dike spillage. Pump off product.

Dispose of absorbed material in accordance with regulations. Collect waste in suitable containers, which can be labeled and sealed. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations.

7. Handling and Storage

Precautions for safe handling

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:

No special precautions necessary. The substance/product is non-combustible. Product is not explosive.

Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds.

Further information on storage conditions: Keep away from heat. Protect from direct sunlight.

8. Exposure Controls/Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Components with occupational exposure limits

glycerol	OSHA PEL	PEL 5 mg/m ³ Respirable fraction ; PEL 15 mg/m ³ Total dust ; TWA value 10 mg/m ³ Total dust ; TWA value 5 mg/m ³ Respirable fraction ;
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Safety Data Sheet

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Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Remove contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	suspension
Odour:	faint odour, sweetish
Odour threshold:	Not determined due to potential health hazard by inhalation.
Colour:	red
pH value:	approx. 6 - 8 (20 °C) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.
Melting point:	The product has not been tested.
Boiling point:	approx. 100 °C The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

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Flash point:	The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. No flash point - Measurement made up to the boiling point.
Flammability:	not applicable
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Upper explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Autoignition:	409 °C The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.
Vapour pressure:	approx. 23.4 hPa (20 °C)
Density:	Information applies to the solvent. approx. 1.07 g/cm ³ (20 °C) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.
Vapour density:	not applicable
Partitioning coefficient n-octanol/water (log Pow):	not applicable
Thermal decomposition:	190 °C, 20 kJ/kg (DSC (DIN 51007)) (onset temperature) 325 °C, 170 kJ/kg (DSC (DIN 51007)) (onset temperature) No decomposition if stored and handled as prescribed/indicated.
Viscosity, dynamic:	approx. 26 mPa.s (20 °C) The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.
Solubility in water:	dispersible
Evaporation rate:	not applicable
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

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Oxidizing properties:
not fire-propagating

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid

See MSDS section 7 - Handling and storage.

Incompatible materials

strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

190 °C, 2.5 K/min (DSC (DIN 51007))

(onset temperature)

325 °C, 2.5 K/min (DSC (DIN 51007))

(onset temperature)

No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation.

Oral

Type of value: LD50

Species: rat (female)

Value: > 2,000 mg/kg

Inhalation

Type of value: LC50

Species: rat (male/female)

Value: > 5.82 mg/l

Dermal

Type of value: LD50

Species: rat (male/female)

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Value: > 5,000 mg/kg

Irritation / corrosion

Assessment of irritating effects: The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. Not irritating to the eyes. Not irritating to the skin.

Skin

Species: rabbit
Result: non-irritant

Eye

Species: rabbit
Result: non-irritant

Sensitization

Assessment of sensitization: Sensitization after skin contact possible. The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: 1,2-benzisothiazol-3(2H)-one

Guinea pig maximization test

Species: guinea pig

Result: Caused skin sensitization in animal studies.

Method: OECD Guideline 406

Literature data.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Pyraclostrobin

Assessment of repeated dose toxicity: After repeated exposure the prominent effect is local irritation.

The substance may cause damage to the olfactory epithelium after repeated inhalation.

Genetic toxicity

Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

Reproductive toxicity

Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity

Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

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Other Information

Misuse can be harmful to health.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

The product has not been tested. The statement has been derived from the properties of the individual components.

Toxicity to fish

Information on: Pyraclostrobin

LC50 (96 h) 0.00616 mg/l, *Oncorhynchus mykiss* (EPA 72-1, Flow through.)

Information on: Triticonazole

LC50 (96 h) > 3.6 mg/l, *Oncorhynchus mykiss*

Information on: metalaxyl

LC50 (96 h) > 100 mg/l, *Oncorhynchus mykiss*

Aquatic invertebrates

Information on: Pyraclostrobin

EC50 (48 h) 0.016 mg/l, *Daphnia magna* (OECD Guideline 202, part 1, static)

Information on: Triticonazole

EC50 (96 h) 1.7 mg/l, *Mysidopsis bahia*

Information on: metalaxyl

LC50 29 mg/l, *Daphnia magna*

Aquatic plants

Information on: Pyraclostrobin

EC50 (96 h) > 0.843 mg/l (growth rate), *Pseudokirchneriella subcapitata* (OECD Guideline 201)

Information on: Triticonazole

EC50 (120 h) 0.31 mg/l, *Skeletonema costatum*

No observed effect concentration (120 h) 0.031 mg/l, *Skeletonema costatum*

EC50 (96 h) 1 mg/l, *Selenastrum capricornutum*

EC50 (14 d) 1.4 mg/l, *Lemna gibba*

No observed effect concentration (14 d) 0.33 mg/l, *Lemna gibba*

Information on: metalaxyl

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EC50 1 mg/l 140 ppm, Selenastrum sp.
EC50 92 ppm, Lemna minor

Persistence and degradability

Assessment biodegradation and elimination (H2O)

The product has not been tested. The statement has been derived from the properties of the individual components.

Assessment biodegradation and elimination (H2O)

Information on: Pyraclostrobin

Not readily biodegradable (by OECD criteria).

Information on: Triticonazole

Not readily biodegradable (by OECD criteria).

Information on: metalaxyl

Not readily biodegradable (by OECD criteria).

Bioaccumulative potential

Assessment bioaccumulation potential

The product has not been tested. The statement has been derived from the properties of the individual components.

Assessment bioaccumulation potential

Information on: Pyraclostrobin

Accumulation in organisms is not to be expected.

Information on: Triticonazole

Accumulation in organisms is not to be expected.

Information on: metalaxyl

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Mobility in soil

Assessment transport between environmental compartments

The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: pyraclostrobin

Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.

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Information on: Triticonazole

Following exposure to soil, the product trickles away and can - dependant on degradation - be transported to deeper soil areas with larger water loads.

Additional information

Other ecotoxicological advice:
Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:

See product label for disposal and recycling instructions.

Container disposal:

Rinse the container or liner as needed for disposal. Add rinsate to spray tank. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. Consult the product label for additional details.

14. Transport Information

Land transport

TDG

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Hazard class:	9
Packing group:	III
ID number:	UN 3082
Hazard label:	9, EHSM
Marine pollutant:	YES
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains TRITICONAZOLE, PYRACLOSTROBIN)

Air transport

IATA/ICAO

Hazard class:	9
Packing group:	III
ID number:	UN 3082
Hazard label:	9, EHSM
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains TRITICONAZOLE, PYRACLOSTROBIN)

15. Regulatory Information

Federal Regulations

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Registration status:

Crop Protection DSL, CA released / exempt

Chemical DSL, CA blocked / not listed

According to Controlled Products Regulations (CPR) (SOR/88-66)

WHMIS does not apply to this product.

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

16. Other Information

SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2015/11/24

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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END OF DATA SHEET



Korrex™ A Herbicide

GROUP	2	HERBICIDE
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FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

Korrex™ A Herbicide is a selective herbicide for postemergent control of annual broadleaf weeds including cleavers, wild buckwheat and chickweed in pre-seed application for spring wheat (including durum), spring barley, winter wheat and oats.

COMMERCIAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: florasulam 25%
Water dispersible granules

REGISTRATION NO. 31405 PEST CONTROL PRODUCTS ACT

WARNING – EYE IRRITANT

NET CONTENTS: 0.02 kg - bulk

Dow AgroSciences Canada Inc.
2400, 215 – 2nd Street S.W.
Calgary, Alberta
T2P 1M4
1-800-667-3852

PRECAUTIONS

WARNING – EYE IRRITANT

KEEP OUT OF REACH OF CHILDREN

DO NOT APPLY BY AIR

Avoid contact with eyes, skin and clothing. Avoid breathing dust or spray mist. Causes eye irritation. DO NOT get in eyes.

At all times: Wear clean clothing with full length sleeves and pants.

During mixing and loading, and clean-up and repair: Wear chemical-resistant gloves. Rinse gloves before removal. Use safety glasses.

At completion of spraying or end of the day: Take a shower immediately. Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

Overspray or drift to sensitive habitats should be avoided. A buffer zone of 30 metres is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelter belts, woodlots, hedgerows, and shrublands. A buffer zone of 5 metres is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats including sloughs, ponds, prairie potholes, lakes, rivers, streams, wetlands and wildlife habitats at the edge of these bodies of water. Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Do not apply during periods of dead calm or when winds are gusty.

STORAGE

Store in original containers in a secure, dry storage. Do not allow contamination of seeds, plants, fertilizers or other pesticides. Do not contaminate food, feedstuffs or domestic water supplies. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Korrex A Herbicide is a selective herbicide for postemergent control of hard-to-kill annual broadleaf weeds such as chickweed, wild buckwheat, and cleavers in spring wheat (including durum), spring barley and winter wheat not underseeded with legumes.

Korrex A Herbicide, alone or in tank-mix with glyphosate herbicides, controls weeds prior to seeding spring wheat (including durum), spring barley, winter wheat and oats. Korrex A Herbicide can be applied in the fall or spring prior to planting or as an initial treatment in summerfallow.

Korrex A Herbicide is a dispersible granule that is mixed with water and applied as a uniform broadcast spray. It is non-corrosive, nonflammable, and nonvolatile.

Korrex A Herbicide must be applied early postemergence to the main flush of actively growing broadleaf weeds. Warm, moist growing conditions promote active weed growth and enhance the activity of Korrex A Herbicide by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds. See DIRECTIONS FOR USE section of this label for complete use details.

Korrex A Herbicide stops growth of susceptible weeds rapidly. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent on weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

MODE OF ACTION

Korrex A Herbicide inhibits the production of the ALS enzyme in plants. This enzyme is essential for the production of certain amino acids which are essential for plant growth. Korrex A Herbicide is a Group 2 mode of action herbicide.

GENERAL USE PRECAUTIONS

- **DO NOT APPLY BY AIR.**
- This product has potential to leach. Do not apply excessive irrigation.
- Do not apply through any type of irrigation system.

Sensitive Plants

Do not apply Korrex A Herbicide directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

Non-Target Sites

Do not apply where proximity of susceptible crops (e.g. canola and legumes) or other desirable plants is likely to result in exposure to spray or spray drift. See Environmental Hazards section of the label.

Crop Rotation

Fields previously treated with Korrex A Herbicide can be seeded the following year to alfalfa, barley, canola, chickpeas, corn, fababeans, field beans, flax, Juncea canola, lentils, mustard (brown, oriental and/or yellow), oats, peas, potatoes (except seed potatoes), soybeans, sunflower, wheat, or fields can be summerfallowed.

Preharvest/Grazing Intervals

Livestock may be grazed on treated crops 7 days following application. Do not harvest the treated crop within 60 days after application.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or www.corteva.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

To Reduce Spray Drift

1. Use nozzles delivering higher volumes and coarser droplets.
2. Use low pressures (200 to 275 kPa).
3. Use 100 L/ha of spray solution.
4. Spray when the wind velocity is 15 km/hr or less.
5. Spot treatments should only be applied with a calibrated boom to prevent over-application.

Sprayer Clean-Out Instructions

To avoid injury to desirable plants, thoroughly clean equipment used to apply this product before re-use or using it to apply other chemicals.

1. Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. First rinse:
 - Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
 - Agitate and circulate for 15 minutes, and flush through booms and hoses.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.
3. Second rinse:
 - Fill the tank with clean water.
 - Add All Clear Spray Tank Decontaminator plus 1 L of household ammonia (containing a minimum of 3 % ammonia) per 100 L of water as per manufacturer's recommendations while filling the tank with clean water.

- Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation. Flush the solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - If possible, let the solution stand in the sprayer tank and booms for an extended period of time, overnight if possible.
 - After flushing the boom and hoses, drain tank completely.
 - Remove nozzles and screens and clean separately with a cleaning agent or an ammonia solution (100 mL in 10 L water).
4. Third rinse:
- Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.

Do not use ammonia with chlorine bleach. Using ammonia with chlorine bleach will release a gas with a musty odour which may cause eye, nose, throat and lung irritation. Do not clean equipment in an enclosed area.

DIRECTIONS FOR USE

READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. DO NOT APPLY TO CROPS UNDERSEEDED WITH LEGUMES.

TANK-MIX COMBINATIONS – KORREX A HERBICIDE + KORREX B HERBICIDE + GLYPHOSATE HERBICIDES (PRESENT AS ISOPROPYLAMINE SALT, DIAMMONIUM SALT, TRIMETHYLSULFONIUM SALT, POTASSIUM SALT OR DIMETHYLAMINE SALT)

Korrex A Herbicide + Korrex B Herbicide + glyphosate herbicides (PRESENT AS ISOPROPYLAMINE SALT, DIAMMONIUM SALT, TRIMETHYLSULFONIUM SALT, POTASSIUM SALT OR DIMETHYLAMINE SALT) will control annual broadleaf weeds and grasses when applied in the fall or spring prior to planting spring wheat (including durum), winter wheat, barley and oats, or as an initial treatment in summerfallow.

Korrex A Herbicide + Korrex B Herbicide + glyphosate must be applied to emerged actively growing weeds. Warm, moist growing conditions promote active weed growth and enhance the activity of Korrex A Herbicide + Korrex B Herbicide + glyphosate herbicides by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds.

Korrex A Herbicide + Korrex B Herbicide + glyphosate stops growth of susceptible weeds rapidly. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent on weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

Delay application until weeds have emerged to the stages described (see list of weeds in tables entitled Weeds Controlled or Suppressed by Korrex A Herbicide + glyphosate and Weeds Controlled or Suppressed by the Tank Mixture of Korrex A Herbicide + Korrex B Herbicide) to provide adequate leaf surface to receive the spray. Unemerged weeds or vegetation arising from underground rhizomes or root

stocks of perennials will not be affected by the spray and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This tank-mix does not provide long-term residual weed control. For subsequent residual weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statement and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oil or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

Mode of Action

This herbicide tank-mix moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

AVOID DRIFT - EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS. Do not allow spray mist to drift since even minute quantities of spray can cause severe damage or destruction to nearby crops, plants or other areas on which treatment is not intended, or may cause other unintended consequences. Do not apply when winds are gusty or in excess of 8 km/h or when other conditions, including lesser wind velocities, will allow drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in fine particles (mist) which are more likely to drift.

DO NOT USE IN GREENHOUSES. REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

Application Directions

Korrex A Herbicide combined with Korrex B Herbicide and glyphosate herbicides (present as isopropylamine salt, diammonium salt, trimethylsulfonium salt, potassium salt or dimethylamine salt) can be tank mixed to broaden the spectrum of broadleaf weeds. These tank mixes will provide control of most grass and broadleaf species.

**Korrex A Herbicide + Korrex B Herbicide + Glyphosate Herbicides
(present as isopropylamine salt, diammonium salt, trimethylsulfonium salt, potassium salt or dimethylamine salt)**

Spring application

Apply 450-2500 grams a.e. per hectare of glyphosate herbicide (present as isopropylamine salt, diammonium salt, trimethylsulfonium salt, potassium salt or dimethylamine salt) tank mixed with 14 g of Korrex A Herbicide and 115-120 g a.e. ha Korrex B Herbicide per hectare.

Fall application

Apply 450-2500 grams a.e. per hectare of glyphosate herbicide (present as isopropylamine salt, diammonium salt, trimethylsulfonium salt, potassium salt or dimethylamine salt) tank mixed with 20 g of Korrex A Herbicide and 115-120 g a.e. ha Korrex B Herbicide per hectare.

Always refer to the product label of the tank-mix partner for further information on weeds controlled, directions for use, restrictions and precautionary label statements. When applied as a tank-mix, consult the labels of the tank-mix partners and observe the most restrictive buffer zone of the products involved in the tank mixture.

Weeds Controlled or Suppressed with Korrex A Herbicide + Korrex B Herbicide + Glyphosate Herbicides (present as isopropylamine salt, diammonium salt, trimethylsulfonium salt, potassium salt or dimethylamine salt)

Spring Application

Rate of Korrex A	Rate of Korrex B	Rate of Glyphosate†	Weeds Controlled or Suppressed
14 g/ha	115-120 g ae/ha	<p>For an application rate of 450 g ae/ha apply:</p> <p>0.83 L/ha (540 g ae/L)</p> <p>0.90 L/ha (500 g ae/L)</p> <p>0.94 L/ha (480 g ae/L)</p> <p>1.0 L/ha (450 g ae/L)</p> <p>1.25 L/ha (360 g ae/L)</p> <p>Use water volumes of 50 to 100 L/ha</p>	<p>Annual Broadleaf Weeds Controlled or Suppressed:</p> <p>buckwheat, wild canola, volunteer* chickweed, common cleavers cow cockle flax, volunteer fleabane, Canada** flixweed narrow-leaved hawk's beard** hempnettle kochia lady's-thumb</p> <p>lamb's-quarters mustard, wild pigweed, redroot ragweed, common** scentless chamomile (suppression only) shepherd's purse smartweed sowthistle, annual (suppression only) stinkweed thistle, Russian</p> <p>Annual Grasses Controlled:</p> <p>barley, volunteer brome, downy foxtail, giant foxtail, green</p> <p>oats, wild Persian darnel wheat, volunteer</p> <p>Perennial Weeds Controlled:</p> <p>dandelion (seedling, overwintered rosettes, mature plants up to 30 cm. in diameter)</p> <p>Perennial Weeds Suppressed:</p> <p>sow-thistle, perennial***</p>
14 g/ha	115-120 g a.e. /ha	<p>For an application rate of 900-2500 g ae/ha apply:</p> <p>1.8 – 5.0 L/ha</p>	<p>Weeds Controlled:</p> <p>Weed claims above plus control of annual sow-thistle</p> <p>Perennial Weeds Controlled:</p> <p>Canada thistle (rosette stage) quack grass</p>

		(500 g ae/L) 1.9 – 5.2 L/ha (480 g ae/L) 2.0 – 5.6 L/ha (450 g ae/L) 2.5 – 6.9 L/ha (360 g ae/L) Use water volume of 100 L/ha	
14 g/ha	115-120 g a.e. /ha	For an application rate of 1700-2500 g a.e./ha apply: 3.4 – 5.0 L/ha (500 g ae/L) 3.6 – 5.2 L/ha (480 g ae/L) 3.8 – 5.6 L/ha (450 g ae/L) 4.7 – 6.9 L/ha (360 g ae/L) Use water volume of 100 L/ha	Weeds Controlled: Weed claims above plus control of Canada thistle (bud stage or beyond)

†The product application rate is dependent upon the guarantee of the product. Refer to glyphosate product label for further information on weeds controlled, directions for use, restrictions and precautionary label statements.

*Including all herbicide tolerant canola varieties

** Less than 8 cm in height

***Applications made at advanced stages will reduce effectiveness

Fall Application

Rate of Korrex A	Rate of Korrex B	Rate of Glyphosate†	Weeds Controlled or Suppressed
20 g/ha	115-120 g ae/ha	For an application rate of 450 g ae/ha apply: 0.83 L/ha (540 g ae/L) 0.90 L/ha (500 g ae/L)	Annual Broadleaf Weeds Controlled or Suppressed: buckwheat, wild canola, volunteer* chickweed, common cleavers cow cockle flax, volunteer fleabane, Canada** flixweed lamb's-quarters mustard, wild pigweed, redroot ragweed, common** scentless chamomile shepherd's purse smartweed sowthistle, annual

		<p>0.94 L/ha (480 g ae/L)</p> <p>1.0 L/ha (450 g ae/L)</p> <p>1.25 L/ha (360 g ae/L)</p> <p>Use water volumes of 50 to 100 L/ha</p>	<p>narrow-leaved hawk's beard**</p> <p>hempnettle</p> <p>kochia</p> <p>lady's-thumb</p> <p>Annual Grasses Controlled:</p> <p>barley, volunteer</p> <p>brome, downy</p> <p>foxtail, giant</p> <p>foxtail, green</p> <p>Perennial Weeds Controlled:</p> <p>dandelion (seedling, overwintered rosettes, mature plants up to 30 cm. in diameter)</p> <p>Perennial Weeds Suppressed:</p> <p>sow-thistle, perennial***</p>	<p>(suppression only)</p> <p>stinkweed</p> <p>thistle, Russian</p> <p>oats, wild</p> <p>Persian darnel</p> <p>wheat, volunteer</p>
20 g/ha	115-120 g a.e. /ha	<p>For an application rate of 900-2500 g ae/ha apply:</p> <p>1.8 – 5.0 L/ha (500 g ae/L)</p> <p>1.9 – 5.2 L/ha (480 g ae/L)</p> <p>2.0 – 5.6 L/ha (450 g ae/L)</p> <p>2.5 – 6.9 L/ha (360 g ae/L)</p> <p>Use water volume of 100 L/ha</p>	<p>Weeds Controlled:</p> <p>Weed claims above plus control of annual sow-thistle</p> <p>Perennial Weeds Controlled:</p> <p>Canada thistle (rosette stage)</p> <p>quack grass</p>	
20 g/ha	115-120 g a.e. /ha	<p>For an application rate of 1700-2500 g a.e./ha apply:</p> <p>3.4 – 5.0 L/ha (500 g ae/L)</p> <p>3.6 – 5.2 L/ha (480 g ae/L)</p> <p>3.8 – 5.6 L/ha (450 g ae/L)</p> <p>4.7 – 6.9 L/ha</p>	<p>Weeds Controlled:</p> <p>Weed claims above plus control of Canada thistle (bud stage or beyond)</p>	

		(360 g ae/L)	
		Use water volume of 100 L/ha	

†The product application rate is dependent upon the guarantee of the product. Refer to glyphosate product label for further information on weeds controlled, directions for use, restrictions and precautionary label statements.

♦Including all herbicide tolerant canola varieties

♦♦ Less than 8 cm in height

♦♦♦Applications made at advanced stages will reduce effectiveness

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the required amount of Korrex A Herbicide, continue agitation.
4. Add the required amount of Korrex B Herbicide, continue agitation.
5. Add the required amount of glyphosate, continue agitation.
6. Fill the sprayer tank with sufficient water to spray 50 - 100 L of spray mixture per hectare.

Application Timing

Apply to actively growing weeds in the 2-4 leaf stage, except where noted above. Extreme growing conditions such as drought or near freezing temperature prior to, at or following time of application may reduce weed control. Only weeds which are emerged at the time of application will be affected. If foliage is wet at the time of application, control may be decreased. Under conditions of high weed density, control may be reduced.

Pre-Seed (spring or fall)

Korrex A Herbicide + Korrex B Herbicide + glyphosate may be applied prior to seeding and no longer than 48 hours after seeding prior to any crop emergence. Fields treated with Korrex A Herbicide + Korrex B Herbicide + glyphosate may be planted to barley, oats, spring wheat (including durum), winter wheat or summerfallowed.

Chem-Fallow

May 1 to July 31: Korrex A Herbicide + Korrex B Herbicide + glyphosate may be applied to summerfallow fields and seeded in the fall to winter wheat, and in the following spring to spring wheat (including durum), barley and oats.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Korrex A Herbicide is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to Korrex A Herbicide and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Korrex A Herbicide or other Group 2 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other

mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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062019

Label Code: CN-31405-006-E

Replaces: CN-31405-005-E

Specimen label notes

Added alfalfa and fababeans to crop rotations

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: KORREX A Herbicide

Issue Date: 07/31/2015

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: KORREX A Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
2100 450 1ST STREET SW
CALGARY AB T2P 5H1
CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 07/31/2015

Customer Information Number:

800-667-3852

solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Solid

Color Tan to brown

Odor Odorless

Hazard Summary

CAUTION!!

May cause eye irritation.

Isolate area.

Toxic fumes may be released in fire situations.

Highly toxic to fish and/or other aquatic organisms.

Cancer hazard.

Can cause cancer.

Potential Health Effects

Ingestion: Based on physical properties, not likely to be an aspiration hazard.

Skin: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Skin: Prolonged contact is essentially nonirritating to skin.

Eyes: Solid or dust may cause irritation or corneal injury due to mechanical action.
May cause moderate eye irritation.
May cause slight corneal injury.

Inhalation: No adverse effects are anticipated from single exposure to dust.
Based on the available data, narcotic effects were not observed.
Based on the available data, respiratory irritation was not observed.

Ingestion: Very low toxicity if swallowed.
Harmful effects not anticipated from swallowing small amounts.

Chronic Exposure: For the active ingredient(s):

In animals, effects have been reported on the following organs:

Kidney.

For the minor component(s):

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Based on information for component(s):

In animals, effects have been reported on the following organs:

Lung.

Kidney.

Liver.

May cause abdominal discomfort or diarrhea.

For the minor component(s):

Crystalline silica has been shown to cause cancer in laboratory animals and humans.

Lung fibrosis and tumors have been observed in rats exposed to titanium dioxide in two lifetime inhalation studies. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Workers exposed to titanium dioxide in the workplace have not shown an unusual incidence of chronic respiratory disease or lung cancer. Titanium dioxide was not carcinogenic in laboratory animals in lifetime feeding studies.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent
Florasulam	145701-23-1	25.0%
Starch	9005-25-8	19.0%
Kaolin	1332-58-7	>= 1.4 - <= 39.1 %
Titanium dioxide	13463-67-7	1.1%
Silica, crystalline (quartz)	14808-60-7	0.4%
Dichloromethane (methylene chloride)	75-09-2	0.02%
Balance	Not available	>= 15.38 - <= 53.08 %

4. FIRST AID MEASURES

Description of first aid measures

General advice: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Hydrogen sulfide. Hydrogen fluoride. Fluorine. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, do not permit dust to accumulate. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Soak thoroughly with water to cool and prevent re-ignition. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Move container from fire area if this is possible without hazard. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Spills or discharge to natural waterways is likely to kill aquatic organisms. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing dust or mist. Use with adequate ventilation. Wash thoroughly after handling. Good housekeeping and controlling of dusts are necessary for safe handling of product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Starch	ACGIH	TWA	10 mg/m ³

	CA AB OEL	TWA	10 mg/m3
	CA BC OEL	TWA	10 mg/m3
	CA QC OEL	TWAEV total dust	10 mg/m3
	CA ON OEL	TWAEV Total	10 mg/m3
Kaolin	ACGIH	TWA Respirable fraction	2 mg/m3
	CA AB OEL	TWA Respirable	2 mg/m3
	CA BC OEL	TWA Respirable	2 mg/m3
	CA QC OEL	TWAEV respirable dust	5 mg/m3
Titanium dioxide	ACGIH	TWA	10 mg/m3 , Titanium dioxide
	CA AB OEL	TWA	10 mg/m3
	CA BC OEL	TWA	10 mg/m3
	CA QC OEL	TWAEV total dust	10 mg/m3
Silica, crystalline (quartz)	ACGIH	TWA Respirable fraction	0.025 mg/m3 , Silica
	CA AB OEL	TWA Respirable particulates	0.025 mg/m3
	CA ON OEL	TWA Respirable fraction	0.1 mg/m3
	CA QC OEL	TWAEV respirable dust	0.1 mg/m3
	CA BC OEL	TWA Respirable	0.025 mg/m3 , Silica
Dichloromethane (methylene chloride)	ACGIH	TWA	50 ppm
	ACGIH	TWA	BEI
	CA AB OEL	TWA	174 mg/m3 50 ppm
	CA BC OEL	TWA	25 ppm
	CA ON OEL	TWAEV	175 mg/m3 50 ppm
	CA QC OEL	TWAEV	174 mg/m3 50 ppm
	ACGIH	TWA	BEI

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

Other protection: No precautions other than clean body-covering clothing should be needed.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, in dusty atmospheres, use an approved particulate respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Solid
Color	Tan to brown
Odor	Odorless
Odor Threshold	Odorless
pH	5.0 1% pH Electrode (1% dispersion)
Melting point/range	No test data available
Freezing point	Not applicable
Boiling point (760 mmHg)	Not applicable
Flash point	closed cup Not applicable
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	The product is not flammable. <i>Flammability (solids)</i>
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	Not applicable
Relative Density (water = 1)	Not applicable
Water solubility	Dispersible
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	381 °C Ramped Temperature
Decomposition temperature	No test data available
Kinematic Viscosity	Not applicable
Explosive properties	No data available
Oxidizing properties	No
Solid Density	0.90 g/cm ³
Bulk density	0.82 kg/m ³ <i>Tapped Volumetric</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Product decomposes above melting temperature. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid.

Incompatible materials: None known.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen fluoride. Hydrogen sulfide.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

As product:

LD50, Rat, female, > 5,000 mg/kg

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, Rat, male and female, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.

As product:

LC50, Rat, male and female, 4 Hour, Dust, > 5.36 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

Solid or dust may cause irritation or corneal injury due to mechanical action.

May cause moderate eye irritation.

May cause slight corneal injury.

Sensitization

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):

In animals, effects have been reported on the following organs:

Kidney.

Based on information for component(s):

In animals, effects have been reported on the following organs:

Lung.

May cause abdominal discomfort or diarrhea.

Carcinogenicity

For the minor component(s): Lung fibrosis and tumors have been observed in rats exposed to titanium dioxide in two lifetime inhalation studies. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Workers exposed to titanium dioxide in the workplace have not shown an unusual incidence of chronic respiratory disease or lung cancer. Titanium dioxide was not carcinogenic in laboratory animals in lifetime feeding studies.

For the active ingredient(s): Did not cause cancer in laboratory animals.

Crystalline silica has been shown to cause cancer in laboratory animals and humans.

Teratogenicity

For the active ingredient(s): Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

For the minor component(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity

In animal studies, active ingredient did not interfere with reproduction.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

For the minor component(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

Carcinogenicity

Component
Titanium dioxide

List
IARC

Classification

Group 2B: Possibly carcinogenic to humans

Silica, crystalline (quartz)

IARC
ACGIH

Group 1: Carcinogenic to humans
A2: Suspected human carcinogen

Dichloromethane (methylene chloride)	IARC	Group 2A: Probably carcinogenic to humans
	US NTP	Reasonably anticipated to be a human carcinogen
	OSHA CARC	OSHA specifically regulated carcinogen
	ACGIH	A3: Confirmed animal carcinogen with unknown relevance to humans.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, 65.5 mg/l

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, > 100 mg/l

Acute toxicity to algae/aquatic plants

EC50, *Lemna gibba*, 7 d, Growth rate inhibition, 0.0055 mg/l

EC50, Algae, 72 Hour, 0.017 mg/l

Toxicity to Above Ground Organisms

oral LD50, *Apis mellifera* (bees), 48 Hour, > 209.6micrograms/bee

contact LD50, *Apis mellifera* (bees), 48 Hour, > 200micrograms/bee

Persistence and degradability

Florasulam

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

Biodegradation: 2 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 0.85 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
	0.012 mg/mg

Stability in Water (1/2-life)

, > 30 d

Photodegradation
Atmospheric half-life: 1.82 Hour
Method: Estimated.

Starch

Biodegradability: Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Kaolin

Biodegradability: Biodegradation is not applicable.

Titanium dioxide

Biodegradability: Biodegradation is not applicable.

Silica, crystalline (quartz)

Biodegradability: Biodegradation is not applicable.

Dichloromethane (methylene chloride)

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 68 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

10-day Window: Not applicable

Biodegradation: 66 %

Exposure time: 50 Hour

Method: Simulation study

Theoretical Oxygen Demand: 0.38 mg/mg

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 79 - 110 d
Method: Estimated.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Florasulam

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -1.22

Bioconcentration factor (BCF): 0.8 Fish 28 d Measured

Starch

Bioaccumulation: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

Titanium dioxide

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Silica, crystalline (quartz)

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Dichloromethane (methylene chloride)**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** 1.25 at 20 °C Measured**Bioconcentration factor (BCF):** 2 - 40 Fish Measured**Balance****Bioaccumulation:** No relevant data found.**Mobility in soil****Florasulam**

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 4 - 54**Starch**

No relevant data found.

Silica, crystalline (quartz)

No relevant data found.

Dichloromethane (methylene chloride)

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 46.8 Estimated.**Balance**

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Florasulam)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Florasulam

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Florasulam)
UN number	UN 3077

Class	9
Packing group	III
Marine pollutant	Florasulam
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.(Florasulam)
UN number	UN 3077
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act Registration Number: 31405

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	1	0

Revision

Identification Number: 101189420 / A215 / Issue Date: 07/31/2015 / Version: 2.1

DAS Code: GF-1352

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
BEI	Biological Exposure Indices
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA ON OEL	Canada. Ontario OELs
CA QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
TWA	8-hour time weighted average
TWAEV	time-weighted average exposure value

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



Korrex™ B Herbicide

GROUP	4	HERBICIDE
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Korrex™ B Herbicide controls broadleaf weeds in reduced tillage, prior to seeding cereals and reduced tillage fallow and crop-free land (summer fallow and stubble).

COMMERCIAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

GUARANTEE: Dicamba, present as the dimethylamine salt.....480 g a.e./L
Solution

REGISTRATION NO. 31205 PEST CONTROL PRODUCTS ACT

CAUTION  **POISON**

WARNING – EYE IRRITANT

NET CONTENTS: 1L - Bulk

Dow AgroSciences Canada Inc.
Suite 2100, 450 - 1 Street S.W.
Calgary, Alberta
T2P 5H1
1-800-667-3852

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes and clothing. Thaw if frozen. Shake before use.

Applicators must wear a long-sleeved shirt, long pants and chemical-resistant gloves.

DO NOT enter treated fields until 12 hours after application.

DO NOT use in residential areas, which are defined as sites where bystanders may be present during or after spraying, including homes, schools, parks, playgrounds, playing fields and public buildings

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

TOXICOLOGICAL INFORMATION

Dicamba may cause severe irritation to the eyes, and irritation to the skin, and mucous membranes. Symptoms of overexposure to dicamba may include dizziness, muscle weakness, loss of appetite, weight loss, vomiting, decreased heart rate, shortness of breath, excitement, tenseness, depression, incontinence, cyanosis, muscle spasms, exhaustion and loss of voice. Treat symptomatically.

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE in the booklet label.

STORAGE

Store Korrex B Herbicide in its original container only, away from other pesticides, fertilizer, food, or feed. Keep the container closed to prevent spills and contamination.

Keep packages dry at all times.

GENERAL PRECAUTIONS

- Korrex B Herbicide should not be applied on or near desirable trees or plants.
- Apply Korrex B Herbicide when air temperature is between 10 - 25°C. Do not apply when there is a risk of severe fall in night temperature after use.
- Do not contaminate domestic or irrigation water. Thoroughly clean application equipment.
- Do not treat areas where movement of the chemical into the soil or surface washing may bring Korrex B Herbicide into contact with roots of desirable plants.
- Do not use additives such as oil, wetting agents, emulsifiers, detergents, spreaders, sticking agents or dispersing agents with Korrex B Herbicide on crops.

- For information on feeding and grazing of beef and dairy cattle on treated vegetation and for recommendations on treatment/harvest intervals, refer to specific grazing restrictions in Directions for Use sections in the booklet label.
- Ensure that spray equipment used to apply Korrex B Herbicide is properly cleaned before reusing to apply any other chemicals. See section on suggested procedure for cleaning spray equipment.

DIRECTIONS FOR USE

DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), estuarine or marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Surface Runoff

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include but are not limited to heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic matter such as clay). Potential for contamination of aquatic areas as a result of runoff may be reduced by including an untreated vegetative strip between the treat area and the edge of the water body.

Avoid applying this product when heavy rain is forecast.

Leaching

The use of the chemical may result in contamination of groundwater, particularly in areas where soils are permeable (e.g. sand, loamy sand and sandy loam soils) and/or the depth to the water table is shallow.

SPRAY DRIFT PRECAUTIONS

Korrex B Herbicide may cause injury to desirable trees and plants, particularly soybeans, flowers, fruit trees, grapes, ornamentals, peas, potatoes, tomatoes, tobacco and other broadleaf plants especially in their developmental and growing stage.

Follow these precautions when spraying in the vicinity of sensitive crops:

1. Avoid spraying when winds are gusty or in excess of 8 km/h and moving towards sensitive crops. Leave an adequate buffer zone between areas to be treated and sensitive plants.
2. Use coarse sprays since they are less likely to drift than fine sprays. Select nozzles which minimize amounts of the fine spray particles. Keep the spray pressure below 150 kPa and the spray volume above 220 L/ha unless otherwise required by the nozzle manufacturer.
3. Do not spray when the temperature is expected to exceed 30°C.
4. Avoid spraying under conditions of high humidity or fog.

SPRAY DRIFT MANAGEMENT

Field Sprayer Application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Ground Application

Apply Korrex B Herbicide or Korrex B Herbicide tank-mixes in at least 110 litres of water/ha.

Applicators must wear a long-sleeved shirt, long pants, and chemical-resistant gloves.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

1. Do not spray when wind velocities are greater than 15 km/hour.
2. Do not use nozzle pressure above 200 kPa.
3. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, or shelterbelt.

Weeds Controlled	Korrex B Herbicide Rate	Tank-Mix
buckwheat, Tartary, buckwheat, wild cockle, cow cleavers (higher rate only) lady's thumb sow-thistle, perennial (top growth only) smartweed, green spurry, corn thistle, Canada (top growth only)	Korrex B Herbicide alone at 230-290 mL/ha	none

KORREX B HERBICIDE / LIQUID NITROGEN

Pre-emergent applications of Korrex B Herbicide are generally compatible with most liquid nitrogen fertilizers. To determine compatibility, mix all components of the finished spray in proportionate quantities in a small jar before mixing in the spray tank. If the herbicides do not ball-up or form flakes, sludge, jelly, oily films or layers, or other precipitates within 5 minutes after mixing, the tested spray-mix is compatible.

Weeds Controlled	Korrex B Herbicide Rate	Tank-Mix
bindweed, field** buckwheat, Tartary buckwheat, wild cleavers cockle, cow lady's-thumb lamb's-quarters* mustard, hare's-ear mustard, Indian mustard, tumble mustard, wild mustard, wormseed pigweed, redroot* pigweed, Russian ragweed, common* ragweed, false ragweed, giant sow-thistle, perennial** spurry, corn smartweed, green thistle, Canada** velvetleaf	Korrex B Herbicide alone at 600 mL - 1.25 L/ha	none

*Including atrazine-resistant species.

**Apply Korrex B Herbicide annually for three years at the flowering stage of bindweed and the budding stage of thistles.

WEED CONTROL IN REDUCED TILLAGE (PRIOR TO SEEDING CEREALS)

Treatment notes

1. Korrex B Herbicide + glyphosate[†] applications may be applied to emerged annual grass and annual broadleaf weeds in reduced tillage systems prior to seeding of wheat, barley, rye and oats.
2. Planting should follow soon after application since this tank-mix does not provide residual weed control.
3. Delayed planting following chemical application will allow weeds to emerge between application and crop emergence.
4. Certain broadleaf crops such as sweet corn, lentils, peas, canola and flax can be injured by a pre-seeding application of this tank-mix and should not be planted after the use of this tank-mix.
5. Under certain stress conditions, such as drought, cool temperatures where extremely hard (>700ppm CA+ Mg) water will be used, use 50 L/ha of water with this tank-mix to help improve results.

Weeds Controlled	Korrex B Herbicide Rate	Rate of glyphosate [†]
Annual grasses (Apply any time between emergence and heading) brome, downy cereals, volunteer darnel, Persian foxtail, green oats, wild	Korrex B Herbicide at 315 mL/ha +	For an application rate of 333 g ai/ha apply: 620 mL/ha (540 g ae/L) 665 mL/ha (500 g ae/L) 695 mL/ha (480 g ae/L) 740 mL/ha (450 g ae/L) 925 mL/ha (360 g ae/L) + 0.5 L of a non-ionic surfactant Use water volume of 100 L/ha
Annual broadleaves (Apply up to 15 cm height) buckwheat, wild* canola, volunteer cockle, cow flixweed** kochia lady's-thumb lamb's-quarters mustard, wild pigweed, redroot smartweed stinkweed** thistle, Russian	Korrex B Herbicide at 315 mL/ha +	
Perennials (Apply before initiation of seed head or browning of lower leaves) barley, foxtail (suppression only)	Korrex B Herbicide at 315 mL/ha +	

*Apply to the 1 to 4-leaf stage.

**For optimal control of winter annual broadleaf weeds such as flixweed and stinkweed, 2,4-D should be applied to emerged, actively growing weeds in the fall the year prior to the Korrex B Herbicide + glyphosate spring pre-seeding tank-mix.

Refer to the 2,4- D product label for appropriate rates.

†The product application rate is dependent upon the guarantee of the product. Refer to glyphosate product label for further information on weeds controlled, directions for use, restrictions and precautionary label statements *Only use glyphosate products registered for reduced or minimum tillage systems.*

WEED CONTROL IN REDUCED TILLAGE FALLOW

Treatment notes

1. Apply Korrex B Herbicide tank-mixes in the spring to fallow land when seedling weeds have emerged, and are actively growing at the 2 to 4-leaf stage.
2. Reduced control may occur if applications are made at an advanced stage of weed development.

Applicators must wear a long-sleeved shirt, long pants, and chemical-resistant gloves.

RE-ENTRY INTERVAL: DO NOT enter treated field until 12 hours after application.

DO NOT APPLY BY AIR.

Weeds Controlled	Korrex B Herbicide Rate	Tank-Mix
barley, foxtail** buckwheat, wild** cereals, volunteer cockle, cow flixweed* foxtail, green kochia lady's-thumb lamb's-quarters mustard, wild oats, wild pigweed, redroot** canola, volunteer stinkweed thistle, Russian	290 mL/ha +	For an application rate of 267- 356 g ai/ha glyphosate† apply: 495 mL - 660 mL/ha (540 g ae/L) 535 mL - 712 mL/ha (500 g ae/L) 555 mL - 743 mL/ha (480 g ae/L) 600 mL - 790 mL/ha (450 g ae/L) 740 mL - 990 mL/ha (360 g ae/L) + 350 mL of non-ionic surfactant
buckwheat, wild	600 mL/ha +	Use water volumes of 50 to 100 L/ha

*For control of flixweed use the higher rate of glyphosate

** Suppression only.

†The product application rate is dependent upon the guarantee of the product. Refer to glyphosate product label for further information on weeds controlled, directions for use, restrictions and precautionary label statements. *Only use glyphosate products registered for reduced tillage systems.*

Korrex B Herbicide/glyphosate application notes

1. These tank-mixes should be applied to emerged actively growing annual weeds from 8-15 cm in height.
2. Use the higher rate of glyphosate when weeds are at a more advanced stage of growth.
3. For perennial weed control, refer to the appropriate section of this label for proper stages of growth and recommended stages of application.
4. Reduced control may occur if muddy water is used, such as water from dug-outs, ponds and unlined ditches.

PERENNIAL WEED CONTROL IN SUMMERFALLOW AND STUBBLE

Treatment notes

1. Apply Korrex B Herbicide in 110-220 litres of water/ha.
2. For the most effective control of Canada thistle, follow a long-term approach that includes in- crop, post-harvest, and summer fallow treatments, in conjunction with tillage operations.
3. If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

Applicators must wear a long-sleeved shirt, long pants, and chemical-resistant gloves.

RE-ENTRY INTERVAL: DO NOT enter treated field until 12 hours after application.

DO NOT APPLY BY AIR

Weeds Controlled	Rate	Recropping in year following
bindweed, field daisy, English dock, curled (top growth) goldenrod ragwort, tansy sow thistle, perennial thistle, Canada	Korrex B Herbicide alone at 2.5 L/ha	cereals soybeans field corn white beans sweet corn
thistle, Canada sow-thistle, perennial	Korrex B Herbicide at 1.25 L/ha + glyphosate† at 605 g ai/ha + 350 mL of a non-ionic surfactant per 100 L of water	All of the above plus canola

†The product application rate is dependent upon the guarantee of the product. Refer to glyphosate product label for further information on weeds controlled, directions for use, restrictions and precautionary label statements. *Only use glyphosate products registered for summerfallow and stubble.*

Application Directions

Summer fallow treatment notes

1. Cultivate in the spring and apply Korrex B Herbicide when:

Weed	Weed Stage
thistles	the majority of thistles are up and before the early bud stage (15-25 cm tall)
field bindweed	in the flowering stage
other weeds	in the early bud stage of growth

2. Cultivate three weeks after application.

Stubble treatment notes

1. Apply to regrowth after harvest and at least 2 weeks prior to a killing frost.

Perennial rosette control in summerfallow

Treatment notes

1. For the most effective control of Canada thistle, follow a long-term approach that includes in-crop, post-harvest, and summerfallow treatments, in conjunction with tillage operations.
2. Commence early spring cultivation and continue as required throughout the summer. Note: The final cultivation must occur by the end of July between July 15 - August 1 and the final cultivation should cut the thistle off 5 to 7.5 cm below the soil surface.
3. Spray in 110-220 L of water/ha when the majority of thistles have emerged as low growing rosettes 15 to 25 cm across.
4. Apply at least two weeks prior to a killing frost.
5. Cultivate three weeks after application.

DO NOT APPLY BY AIR.

Weeds Controlled	Rate	Recropping in year following
thistle, Canada	1.25 L/ha	cereals field corn white beans canola soybeans

BUFFER ZONES

Use of the following spray methods or equipment DOES NOT require a buffer zone: hand-held or backpack sprayer, spot treatment, inter-row hooded sprayer, soil drench and soil incorporation.

The buffer zones specified in the tables below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Buffer Zones for Uses in Agriculture Using ASAE Coarse Applications

Method of Application	Crop	Buffer zones (metres) Required for the Protection of:				Terrestrial habitat
		Freshwater habitats of depths:		Estuarine/marine habitats of depths:		
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Barley, oats, rye, wheat, (cereals)	0	0	0	0	1
	Stubble fields, fallow land	1	1	0	0	5

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Korrex B Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Korrex B Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Korrex B or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

TMTrademarks of Dow AgroSciences, DuPont or Pioneer and their affiliated companies or respective owners.

All other products are registered trademarks of their respective companies.

112714

Label Code: CN-31205-003-E

Replaces: CN-31205-002-E

Specimen label notes:

Branding update

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: KORREX B Herbicide

Issue Date: 06/09/2015

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: KORREX B Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
2100 450 1ST STREET SW
CALGARY AB T2P 5H1
CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 06/09/2015

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid

Color amber

Odor Amine

Hazard Summary

DANGER!!

Causes severe eye burns.

May cause skin irritation.

May be harmful if inhaled.

Evacuate area.

Keep upwind of spill.

Potential Health Effects

Eyes: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Skin: Prolonged skin contact is unlikely to result in absorption of harmful amounts. Brief contact may cause skin irritation with local redness. Skin contact may cause an allergic skin reaction in a small proportion of individuals.

Inhalation: Prolonged excessive exposure to mist may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Mixture
This product is a mixture.

Component	CASRN	Weight percent
3,6-Dichloro-o-anisic acid, compound with dimethylamine (1:1	2300-66-5	49.77%
Balance	Not available	50.23%

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: This material does not burn. If exposed to fire from another source, use suitable extinguishing agent for that fire.

Unsuitable extinguishing media: no data available

Special hazards arising from the substance or mixture

Hazardous combustion products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Chlorine. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: In a fire situation, residue can burn.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. This material does not burn. Fight fire for other material that is burning. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Evacuate area. Refer to section 7, Handling, for additional precautionary measures. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not get in eyes. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING. None established

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne

concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid
Color	amber
Odor	Amine
Odor Threshold	no data available
pH	7 - 8 <i>Vendor</i>
Melting point/range	Not applicable
Freezing point	no data available
Boiling point (760 mmHg)	100 °C <i>Vendor</i>
Flash point	closed cup <i>Vendor</i> does not flash
Evaporation Rate (Butyl Acetate = 1)	no data available
Flammability (solid, gas)	no data available
Lower explosion limit	<i>Vendor</i> Not applicable
Upper explosion limit	<i>Vendor</i> Not applicable
Vapor Pressure	18 mmHg at 20 °C <i>Vendor</i>
Relative Vapor Density (air = 1)	no data available
Relative Density (water = 1)	no data available
Water solubility	<i>Vendor</i> completely soluble in water
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
Dynamic Viscosity	no data available
Kinematic Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	no data available
Liquid Density	1.16 g/cm ³ <i>Vendor</i>
Molecular weight	no data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: no data available

Chemical stability: Thermally stable at recommended temperatures and pressures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: None known.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Chlorine. Carbon monoxide. Carbon dioxide. Hydrogen chloride. Nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

LD50, Rat, 2,629 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rabbit, > 2,000 mg/kg

Acute inhalation toxicity

Prolonged excessive exposure to mist may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

LC50, Rat, 4 Hour, dust/mist, > 5.4 mg/l

Skin corrosion/irritation

Brief contact may cause skin irritation with local redness.

Serious eye damage/eye irritation

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Sensitization

Skin contact may cause an allergic skin reaction in a small proportion of individuals.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For similar active ingredient(s).
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity

For similar active ingredient(s). Did not cause cancer in laboratory animals.

Teratogenicity

For similar active ingredient(s). Did not cause birth defects in laboratory animals.

Reproductive toxicity

For similar active ingredient(s). In animal studies, did not interfere with reproduction.

Mutagenicity

For similar active ingredient(s). In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on available information, aspiration hazard could not be determined.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity**3,6-Dichloro-o-anisic acid, compound with dimethylamine (1:1)****Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Balance**Acute toxicity to fish**

No relevant data found.

Persistence and degradability**3,6-Dichloro-o-anisic acid, compound with dimethylamine (1:1)**

Biodegradability: No relevant data found.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential**3,6-Dichloro-o-anisic acid, compound with dimethylamine (1:1)**

Bioaccumulation: For similar active ingredient(s). Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Balance

Bioaccumulation: No relevant data found.

Mobility in soil**3,6-Dichloro-o-anisic acid, compound with dimethylamine (1:1)**

For similar active ingredient(s).

Potential for mobility in soil is medium (Koc between 150 and 500).

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

**Transport in bulk
according to Annex I or II
of MARPOL 73/78 and the
IBC or IGC Code**

Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act Registration Number: 31205

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
3	0	0

Revision

Identification Number: 101293905 / A215 / Issue Date: 06/09/2015 / Version: 1.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

PMRA Approved Label
2017-1510

booklet

LI 700[®]

COMMERCIAL
SOLUTION

NON-IONIC

PENETRATING SURFACTANT, pH ADJUSTER, DEPOSITION AID
AND HARVEST AID

DANGER: CAUSES SKIN AND EYE IRRITATION

KEEP OUT OF REACH OF CHILDREN

READ THE LABEL AND BOOKLET BEFORE USING

PROTECT FROM FREEZING

REGISTRATION NO. 23026 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: Surfactant Blend 80%

WARNING: Contains the allergen soy.

IN CASE OF EMERGENCY DUE TO A MAJOR SPILL, FIRE OR POISONING
INVOLVING THIS PRODUCT CALL DAY OR NIGHT, 1-800-561-8273

NET CONTENTS: 3.78 – 1000 L

**LOVELAND PRODUCTS CANADA, INC.
789 DONNYBROOK DRIVE
DORCHESTER, ON
N0L 1G5
Product Inquiries: 1-800-328-4678**

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. Can cause skin and eye irritation. The vapours are irritating to the eyes, nose and throat. Do not get in eyes or on skin. Wear goggles or face shield during mixing and loading. Wear coveralls over long-sleeved shirt and long pants, chemical-resistant footwear during mixing, loading, application, clean-up and repair. Avoid contact with skin, eyes or clothing. Avoid breathing vapours or mist. Use adequate ventilation. Wash thoroughly after handling. Harmful if swallowed. Keep container closed during storage.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

FIRST AID

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

DISPOSAL

1. Triple - or pressure - rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on the disposal of unused, unwanted product contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *PEST CONTROL PRODUCTS ACT* to use this product in a way that is inconsistent with the directions on the label.

DIRECTIONS FOR USE:

1. PENETRATING SURFACTANT

USE	RATE	REMARKS
Tank mix with Glyphosate*	Use 0.25-0.5% V/V (2.5 L - 5 L of LI 700 per 1000 L spray mixture or 250 ml – 500 ml of LI 700 per 100 l of spray mixture)	Include LI 700 in the spray solution with glyphosate only where a non-ionic surfactant is required and at the non-ionic surfactant rate specified on the glyphosate product label and that is within 0.25-0.5% v/v.

* LI 700 is a water soluble non-ionic agent that is recommended for use with Glyphosate products, such as GLYFOS® brand herbicides and ROUNDUP® brand herbicides, RENEGADE HC LIQUID HERBICIDE®, VISION SILVICULTURE HERBICIDE®, VISIONMAX SILVICULTURE HERBICIDE, SHARPSHOOTER HERBICIDE® and SHARPSHOOTER PLUS HERBICIDE®.

TANK MIX PARTNERS

CROP	WEEDS	RATE	REMARKS
Spring Wheat Including: Hard red spring, Canada Prairie spring, soft white spring and extra strong (utility) wheat	Wild Oats, Green Foxtail (Wild Millet) and Broad Leaf Weeds listed on the broadleaf herbicide label	EVEREST SOLUPAK 70 DF Herbicide, 43g/ha OR EVEREST 2.0 Herbicide, 36-72ml/ha +LI 700 at 0.25%v/v (2.5L/1000L) +2,4-D Amine 500 or 2,4-D Amine 600 or 2,4-D Ester 600 or 2,4-D Ester 700 or Buctril M or Estaprop or Dichlorprop-D or Refine Extra + 2,4-D Amine 500 or Refine Extra + 2,4-D Amine 600 or Thumper or MCPA ESTER 500 at 840 mL/ha	Follow all directions and precautions on the tank-mix partner labels.
Durum Wheat	Wild Oats, Green Foxtail (Wild Millet) and Broad Leaf Weeds listed on the broadleaf herbicide label	EVEREST SOLUPAK 70 DF Herbicide, 43 g/ha OR EVEREST 2.0 Herbicide, 36-72ml/ha +LI 700 at 0.25%v/v (2.5L/1000L) +2,4-D Amine 500 or 2,4-D Amine 600 or 2,4-D Ester 600	Follow all directions and precautions on the tank-mix partner labels.

		or 2,4-D Ester 700 or Buctril M or Estaprop or Dichlorprop-D or Refine Extra + 2,4-D Amine 500 or Refine Extra + 2,4-D Amine 600 or Thumper	
As per the herbicide label	Weeds listed on the herbicide label	Curtail M Herbicide +LI 700 at 0.25%v/v (2.5L/1000L)	Follow all directions and precautions on the tank-mix partner labels.
As per the herbicide label	Weeds listed on the herbicide label	Lontrel 360 Herbicide +LI 700 at 0.25%v/v (2.5L/1000L)	Follow all directions and precautions on the tank-mix partner labels

As per the herbicide label	Weeds listed on the herbicide label	Pardner Herbicide +LI 700 at 0.25%v/v (2.5L/1000L)	Follow all directions and precautions on the tank-mix partner labels
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CROP	INSECTS	RATE	REMARKS
Potato	Aphids listed on the FULFILL 50 WG INSECTICIDE label.	FULFILL 50 WG INSECTICIDE +LI 700 at 0.5%V/V (5L/1000L)	Follow all directions and precautions on the tank-mix partner label.

2. pH ADJUSTER/ACIDIFIER

USE	RATE	REMARKS
Highly alkaline water (pH 8 or higher)	Use 625 mL to 1.25 L of LI 700 per 1000 L water mixture.	Alkaline water, even mildly alkaline, causes alkaline hydrolysis or degradation of many pesticides. Some chemicals degrade in less time than it takes to put out a tank of spray. When mixed with spray solutions, LI 700 neutralizes or slightly acidifies the spray solution. LI 700 prevents the breakdown hydrolysis, e.g. pH sensitive products, in the spray tank. To reduce

Mildly alkaline water (pH 6.5 to 8)	Use 300 to 625 mL of LI 700 per 1000 L water mixture.	chemical hydrolysis, an acid based product like LI 700 can be used. It can effectively lower the pH of water that is mixed with pesticides. Add LI 700 before adding the pesticide.
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3. DEPOSITION AID, DRIFT REDUCTION AGENT

USE	RATE	REMARKS
Tank mix with Glyphosate*	Use 0.25 - 0.5% V/V (2.5 L- 5 L of LI 700 per 1000 L spray mixture)	LI 700 improves deposition and reduces drift potential by producing a more uniform spray pattern. LI 700 reduces the incidence of small droplets. Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Follow all directions and precautions on the tank mix partner labels.

4. HARVEST AID – Tank Mix with Reglone® Desiccant and Stage Desiccant

Use 0.25% v/v LI 700 (2.5L of LI 700 per 1000 L of spray solution). Follow all directions and precautions on the Reglone and Stage Desiccant label.

CROPS	Reglone or Stage Desiccant RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION
Beans - White Kidney, Red Kidney, Soybeans and Adzuki beans.	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop).
	1.7-2.1	Aerial	At least 45	
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth.
Lentils	2.3	Aerial	At least 45	
	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop).
	1.7	Aerial	At least 45	
	1.7	Ground	225-550	Very dense canopy and/or weedy crop.
	2.3	Aerial	at least 45	
Potato – Vine Killing (Prairie Provinces only)	1.25	Ground	550-1100	Top growth fully mature, little or no weeds.

® All product names are registered trademarks of their respective companies

IN CASE OF EMERGENCY DUE TO A MAJOR SPILL, FIRE OR POISONING INVOLVING THIS PRODUCT CALL DAY OR NIGHT, 1-800-561-8273 or CHEMTREC 1-800-424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURED FOR:

LOVELAND PRODUCTS CANADA, INC.
789 Donnybrook Drive • Dorchester, Ontario N0L 1G5

24-Hour Emergency Phone: 1-800-561-8273
Additional Emergency Phone (Canutec): 1-613-996-6666 (Collect)

CHEMICAL IDENTITY: Blend of Methylacetic Acid, processed Lecithin and surfactant
PRODUCT USE: Penetrating Surfactant, pH Adjuster, Deposition Aid, Harvest Aid
PCP REG. NO.: 23026
SDS Number: 23026-15-LPI

SDS Revisions: Section 1

Date of Issue: 09/13/15

Supersedes: 09/13/12

2. HAZARDS IDENTIFICATION SUMMARY

KEEP OUT OF REACH OF CHILDREN - DANGER. LIQUID CAUSES SKIN AND EYE IRRITATION. Wear eye protection and chemical resistant gloves.

WARNING: Contains the allergen soy.

This product is a dark brown liquid with pungent odour. Primary routes of entry are Inhalation, eye contact and skin contact.

3. COMPOSITION, INFORMATION ON INGREDIENTS

<u>Chemical Ingredients:</u>	<u>Percentage by Weight:</u>	<u>CAS No.</u>	<u>TLV (Units)</u>
Surfactant Blend, contains	80.00	Mixture	not listed
Methylacetic Acid		79-09-4	30 mg/m ³
Inert Ingredients	20.00		
This product is hazardous according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)			

4. FIRST AID MEASURES

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration. Call a poison control centre or doctor for treatment advice.

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-800-561-8273. Take container, label or product name and Pest Control Product Registration number with you when seeking medical attention.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F/Test Method): >212°F (100°C) / TCC

FLAMMABLE LIMITS (LFL & UFL): Not established

EXTINGUISHING MEDIA: Considered non-combustible; dry chemical, carbon dioxide, alcohol foam, foam, water spray or fog.

HAZARDOUS COMBUSTION PRODUCTS: May produce hazardous by-products.

SPECIAL FIRE FIGHTING PROCEDURES: Use water spray to cool containers exposed to fire. Remain upwind. Avoid breathing smoke. Wear self-contained breathing apparatus and full protective gear. Avoid using heavy streams of water.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Release or Spill: Wear chemical safety glasses with side shields or chemical goggles, rubber gloves, rubber boots, long-sleeved shirt, long pants, head covering, and a NIOSH-approved pesticide respirator or air-supplied respirator.

For spills: Spills may be collected with absorbent material and placed in a container for proper disposal in accordance with Federal, State and Local Regulations. Prevent runoff from entering sewer drains and waterways.

7. HANDLING AND STORAGE

HANDLING: Avoid eye and skin contact. Use with ventilation and avoid breathing vapors.

STORAGE: Store above 40°F/4.4°C. Protect from freezing. Store in a cool, dry place. Store in original container. Keep container tightly closed. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Local ventilation recommended. Work in well-ventilated area or outdoors.
RESPIRATORY PROTECTION: Wear a NIOSH approved respirator if necessary or if vapors exceed TLV (threshold limit value).
EYE PROTECTION: Chemical goggles or shielded safety glasses.
SKIN PROTECTION: Wear protective clothing: long-sleeved shirts and pants, hat, rubber boots with socks. Wear rubber or chemical-resistant gloves.

Propionic Acid	OSHA PEL 8 hr TWA not listed	ACGIH TLV-TWA 30 mg/m ³
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9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Dark brown liquid with pungent odour. **SOLUBILITY:** Miscible
SPECIFIC GRAVITY (Water = 1): 1.035 g/ml **BULK DENSITY:** 1.04 kg/L **pH:** 3.6 (1% solution)
VAPOR PRESSURE: not established **BOILING POINT:** not established
PERCENT VOLATILE (by volume): not established **EVAPORATION RATE:** not established
 Note: These physical data are typical values based on material tested but may vary from sample to sample.
 Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

10. STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: High alkaline conditions.
INCOMPATIBILITY: Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS: None known.
HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

Acute Oral LD₅₀ (male rat): > 5.0 g/kg **Acute Dermal LD₅₀ (rat):** > 5.0 g/kg
Eye Irritation (rabbit): Severe irritant **Skin Irritation (rabbit):** Severely irritating
Inhalation LC₅₀ (rat): > 6.04 mg/L (4 hr) **Skin Sensitization (guinea pig):** Not a sensitizer.
Carcinogenic Potential: Nothing listed in IARC, ACGIH, NTP or OSHA.

12. ECOLOGICAL INFORMATION

Aquatic Acute Toxicity	<u>24 HR LC₅₀</u>	<u>48 HR LC₅₀</u>	<u>96 HR LC₅₀</u>	<u>96 HR No Effect</u>
Rainbow Trout	140 mg/L	130 mg/L	130 mg/L	< 100 mg/L
Bluegill Sunfish	220 mg/L	210 mg/L	210 mg/L	100 mg/L
				<u>48 HR No Effect</u>
Daphnia Magna	450 mg/L	170 mg/L		100 mg/L

13. DISPOSAL CONSIDERATIONS

Do not reuse containers for any purpose. Refillable Container: For disposal, the container may be returned to the point of purchase (dealer/distributor). It must be refilled by the dealer/distributor with the same product. Container is recyclable, and is to be disposed of at a container collection site. Contact your local dealer/distributor for the location of the nearest collection site. Before taking container to the collection site: Triple or pressure-rinse the empty container, adding the rinsate to the spray tank. Make the empty container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Do not contaminate water, food, or feed by storage or disposal.

14. TRANSPORT INFORMATION

DOT / TDG Shipping Description: NOT REGULATED
U.S. Surface Freight Classification: ADHESIVES, ADJUVANTS, SPREADERS OR STICKERS (NMFC 4610; CLASS: 60)
 Consult appropriate ICAO/IATA and IMDG regulations for shipment requirements in the Air and Maritime shipping modes.

15. REGULATORY INFORMATION

NFPA & HMIS Hazard Ratings:	NFPA		HMIS
	2 Health	0 Least	2 Health
	1 Flammability	1 Slight	1 Flammability
	0 Instability	2 Moderate	0 Reactivity
		3 High	G PPE
		4 Severe	

SARA Hazard Notification/Reporting

SARA Title III Hazard Category: Immediate Y Fire N Sudden Release of Pressure N
 Delayed N Reactive N

Reportable Quantity (RQ) under U.S. CERCLA: Propionic Acid (CAS: 79-09-4) 5000 pounds

SARA, Title III, Section 313: Not listed

RCRA Waste Code: Not listed

CA Proposition 65: Not applicable

WHMIS [Canada]: Pest control products are not controlled under WHMIS. Classified D2B

16. OTHER INFORMATION

SDS STATUS: Section 1 revised

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental Health and Safety

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Disclaimer and Limitation of Liability: This data sheet was developed from information on the constituent materials identified herein and does not relate to the use of such materials in combination with any other material or process. No warranty is expressed or implied with respect to the completeness or ongoing accuracy of the information contained in this data sheet, and LOVELAND PRODUCTS CANADA, INC. disclaims all liability for reliance on such information. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.

LIBERTY[®]  [®] 150 SN Herbicide

GROUP	10	HERBICIDE
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**For sale for use in glufosinate ammonium tolerant Canola grown in the
Prairie Provinces and Interior of British Columbia only.**

SOLUTION

COMMERCIAL



WARNING: SKIN AND EYE IRRITANT

REGISTRATION NUMBER 28837 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: glufosinate ammonium 150 g/L

NET CONTENTS: 1L – Bulk

READ THE LABEL AND BOOKLET BEFORE USING

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT
1-800-454-2673**

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, Ontario
L5R 4H1
1-877-371-2273

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PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN. Harmful or fatal if absorbed through the skin. Harmful if swallowed. Causes eye irritation. DO NOT get in eyes, on skin or on clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

Protective Clothing and Equipment: Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes, and protective eyewear (goggles or face shield) during mixing, loading, application, clean-up and repair. Gloves and protective eyewear (goggles or face shield) are not required during application within a closed cab and/or cockpit. If used in a tank mix, follow the most protective PPE directions of the products used.

Re-entry Restriction: Workers should not enter treated fields within 24 hours of treatment. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention. **If swallowed:** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person. **If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice. **If inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION: Note to physician: If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration.

ENVIRONMENTAL HAZARDS: TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under Directions for Use. Avoid spray drift to susceptible plants and USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES. To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE: CANNOT be stored below freezing. If stored for 1 year or longer, shake well before using. Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs. Do not use or store in or around the home. Keep in original container during storage. To prevent contamination, store this product away from food or feed.

DISPOSAL: Recyclable Container Disposal (less than 23 litres): Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site: 1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank. 2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. **Returnable Container Disposal:** Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer). **Refillable Container Disposal:** For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose. **Disposal of Unused, Unwanted Product:** For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills. **Disposal of Unused Spray Solution:** If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Booklet

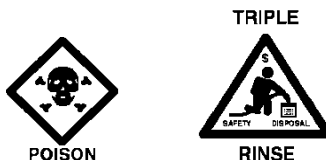
LIBERTY[®]  **[®]** 150 SN Herbicide

GROUP	10	HERBICIDE
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**For sale for use in glufosinate ammonium tolerant Canola grown in the
Prairie Provinces and Interior of British Columbia only.**

SOLUTION

COMMERCIAL



WARNING: SKIN AND EYE IRRITANT

REGISTRATION NUMBER 28837 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: glufosinate ammonium 150 g/L


NET CONTENTS: 1L – Bulk

READ THE LABEL AND BOOKLET BEFORE USING

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT**

1-800-454-2673

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, Ontario
L5R 4H1
1-877-371-2273


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LIBERTY 150 SN HERBICIDE

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GENERAL INFORMATION

Section 1: The Product

- LIBERTY 150 SN Herbicide provides control of a broad spectrum of grassy and broadleaf weeds in Canola varieties or hybrids that are specially developed to be tolerant to glufosinate ammonium.
- LIBERTY 150 SN Herbicide is registered for use on glufosinate ammonium tolerant Canola varieties or hybrids [example: varieties or hybrids labelled with LibertyLink® and the  symbol].
- LIBERTY 150 SN Herbicide may also be applied to glufosinate ammonium tolerant lines or varieties grown for seed production.

SAFETY AND HANDLING

Section 2: Precautions and Protective Clothing and Equipment

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Harmful or fatal if absorbed through the skin. Harmful if swallowed. Causes eye irritation. DO NOT get in eyes, on skin or on clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

Protective Clothing and Equipment

- Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes, and protective eyewear (goggles or face shield) during mixing, loading, application, clean-up and repair. Gloves and protective eyewear (goggles or face shield) are not required during application within a closed cab and/or cockpit.
- If used in a tank mix, follow the most protective PPE directions of the products used.

Re-entry Restriction

- Workers should not enter treated fields within 24 hours of treatment. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Section 3: First Aid and Toxicological Information

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION:

NOTE TO PHYSICIAN: If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration.

Section 4: Environmental Hazards

- TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
- Avoid spray drift to susceptible plants and USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Section 5: Storage

- CANNOT be stored below freezing.
- If stored for 1 year or longer, shake well before using.
- Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs.
- Do not use or store in or around the home.
- Keep in original container during storage.
- To prevent contamination, store this product away from food or feed.

Section 6: Disposal

Recyclable Container Disposal: (less than 23 litres):

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container Disposal:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Refillable Container Disposal:

For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

Disposal of Unused Spray Solution:

If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.


DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

POST EMERGENT USE

Section 7: Crops, Weeds, Timing and Rates

CANOLA - PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA ONLY

LIBERTY 150 SN Herbicide is registered for aerial and ground application to glufosinate ammonium tolerant Canola varieties or hybrids [example: varieties or hybrids labelled with LibertyLink® and the symbol ] grown in the Prairie Provinces and Interior of British Columbia only.

- **To assure crop safety and optimal herbicide performance, only use LIBERTY 150 SN Herbicide on glufosinate ammonium tolerant (i.e., LibertyLink) Canola grown from certified seed.**
- LIBERTY 150 SN Herbicide is not registered for use on other glufosinate ammonium tolerant crops.
- **Application of LIBERTY 150 SN Herbicide to non-tolerant Canola varieties or hybrids or other non-tolerant crops will result in severe crop injury or death of the crop.**
- Apply LIBERTY 150 SN Herbicide from the cotyledon stage up until, but prior to, early bolting stage of Canola.
- Refer to weed/rate chart in this label for application rates and weeds controlled.
- For control/suppression of late emerging weeds or if new weed germination or growth is present, re-apply LIBERTY 150 SN Herbicide.

- Up to three applications of LIBERTY 150 SN Herbicide, each at a maximum of 4 L/ha may be made. The third application must occur prior to the early bolting stage of Canola.
- **Do not apply more than a total of 12 L/ha per year.**
- Apply when the new weed growth is in the correct leaf stage and up until, but prior to, the bolting stage of Canola. For best results, apply to emerged, young, actively growing weeds. Weeds that emerge after application will not be controlled.
- LIBERTY 150 SN Herbicide will have an effect on weeds that are larger than the recommended leaf stage, however speed of activity and control may be reduced.
- Slight discoloration of the Canola may be visible after application. This effect is temporary and will not influence crop growth, maturity or yield.
- LIBERTY 150 SN Herbicide may also be applied to glufosinate ammonium tolerant Canola lines or varieties grown for seed production.
- **For hybrid seed production** - Two applications are required to remove the segregating wild type plants. The first application should occur when the Canola is in the 2-4 leaf stage, the second application when the Canola plants are in the 4-6 leaf stage and the third application, if necessary, may be applied to the Canola up until, but prior to, the bolting stage. All applications of LIBERTY 150 SN Herbicide for hybrid seed production should be made at 3.33 – 4 L/ha.
- DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

SUSCEPTIBLE WEEDS: LIBERTY 150 SN Herbicide has an effect on all weeds and crops except for those crops which are developed to be tolerant to applications of LIBERTY 150 SN Herbicide. The following weeds are susceptible to application of LIBERTY 150 SN Herbicide. Best control will be obtained when LIBERTY 150 SN Herbicide is applied in the recommended leaf stages.

WEED	RECOMMENDED WEED LEAF STAGE								RATE	
	1	2	3	4	5	6	7	8		
Cow Cockle	-----									1.33 L/ha
Green Foxtail	-----									Maximum 3 tillers

WEED	RECOMMENDED WEED LEAF STAGE								RATE	
	1	2	3	4	5	6	7	8		
Barnyard Grass	-----									2 L/ha
Lady's Thumb	-----									
Lamb's-quarters	-----									
Russian Thistle	Up to 8 cm height									
Smartweed	-----									
Stinkweed	-----									
Volunteer Flax	Up to 6 cm height									
Wild Mustard	-----									

WEED	RECOMMENDED WEED LEAF STAGE								RATE
	1	2	3	4	5	6	7	8	
Canada Thistle ¹	Up to 10 cm height								2.67 L/ha
Common Chickweed	-----			Leaf Pairs					
Hemp-nettle	-----			Leaf Pairs					
Kochia	Up to 8 cm height								
Perennial Sow Thistle	-----								
Quackgrass ¹	-----								
Redroot Pigweed	-----								
Round-leaved Mallow	-----								
Scentless Chamomile	Up to 10 cm height								
Shepherd's-purse	-----								
Volunteer Barley ²	-----			Maximum 2 tillers					
Volunteer Wheat	-----			Maximum 2 tillers					
Wild Buckwheat	-----								

WEED	RECOMMENDED WEED LEAF STAGE								RATE
	1	2	3	4	5	6	7	8	
Cleavers	-----		Whorls						3.33 L/ha
Dandelion	1-15 cm rosette								
Flixweed	Up to 10 cm height								
Hemp-nettle	-----			Leaf Pairs					
Jimsonweed	-----								
Quackgrass ³	-----								
Stork's Bill	-----								
Wild Oats	-----			Maximum 2 tillers					

WEED	RECOMMENDED WEED LEAF STAGE								RATE
	1	2	3	4	5	6	7	8	
Heavy Populations									3.33 L/ha
Canada Thistle ¹	Up to 10 cm height								
Quackgrass ¹	-----								
Volunteer Barley ²	-----			Maximum 2 tillers					
Volunteer Wheat	-----			Maximum 2 tillers					
Wild Buckwheat	-----								

WEED	RECOMMENDED WEED LEAF STAGE								RATE
	1	2	3	4	5	6	7	8	
Canada Thistle ⁴	Up to 10 cm height								4 L/ha
Jimsonweed ⁵	-----								
Quackgrass ⁶	-----								
Japanese Brome ⁷	----- up to emergence of 1 st tiller								
Downy Brome ⁷	----- up to emergence of 1 st tiller								

¹ Top Growth Suppression Only

² Suppression Only

³ Improved Top Growth Control

⁴ Better Top Growth Suppression

⁵ Improved Control

⁶ Season Long Control for Heavy Populations

⁷ Spring-germinated Brome Only; best results are obtained after a pre-seed or burndown application with a glyphosate herbicide.

Section 8: Tank Mixes

- Do not tank mix LIBERTY 150 SN Herbicide with herbicides, fertilizers or chemical additives unless recommended on this label.
- When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.
- Tank mix partners may have additional restrictions for leaf staging.
- For enhanced activity LIBERTY 150 SN Herbicide may be tank mixed with the following products.

CANOLA

TANK MIX PRODUCT	RATE	DIRECTIONS
Centurion® or Select®	63 mL/ha	For control of Volunteer Barley and Wild Oats, apply LIBERTY 150 SN Herbicide at a rate of 2.67 – 4.0 L/ha plus Centurion or Select at 63 mL/ha with adjuvant as recommended on the Centurion or Select label. Apply when the weeds are in the 1-4 leaf stage with a maximum of 2 tillers.
Centurion® or Select®	190 mL/ha	For control of weed species listed on the LIBERTY 150 SN Herbicide and Centurion or Select labels plus foxtail barley, spring-germinated Japanese and downy brome apply LIBERTY 150 SN Herbicide at a rate of 3.33 – 4.0 L/ha in tank mixture with Centurion or Select at 190 mL/ha and adjuvant as recommended on the Centurion or Select label. Apply when the weeds are at growth stages listed on the LIBERTY 150 SN Herbicide, Centurion and Select labels, foxtail barley is at the 1-4 leaf stage with a maximum of 2 tillers and spring-germinated Japanese and downy brome are at the 1- to 6-leaf up to the emergence of the 1 st tiller

		stage.
Facet L + Merge®	0.28 L/ha + 0.5 – 1.0 L/ha	For enhanced and more consistent control of cleavers, apply LIBERTY 150 SN Herbicide at a rate of 3.33 L/ha plus Facet L at 0.28 L/ha. Apply in 100 L/ha of water with Merge Adjuvant at a rate of 0.5 to 1 L/ha. Application should be made from the 2 to 6 true leaf stage of the canola crop.
Facet L + Centurion® + Amigo® or Merge®	0.28 L/ha + 63 mL/ha + 0.5 L/ha	For enhanced and more consistent control of cleavers and annual grasses, apply LIBERTY 150 SN Herbicide at a rate of 3.33 L/ha plus Facet L at 0.28 L/ha plus Centurion at 63 mL/ha. Apply in 100 L/ha of water with Amigo or Merge Adjuvant at 0.5 L/ha. Application should be made from the 2 to 6 true leaf stage of the canola crop.

Section 9: Herbicide Resistance Management Recommendations

For resistance management, LIBERTY 150 SN Herbicide is a Group 10 herbicide. Any weed population may contain or develop plants naturally resistant to LIBERTY 150 SN Herbicide and other Group 10 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of LIBERTY 150 SN Herbicide or other Group 10 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural, (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting

clean seed.

- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact BASF at 1-877-371-2273 or at www.agsolutions.ca.

Section 10: Application Instructions and Precautions

APPLICATION INSTRUCTIONS:

- The speed of action of LIBERTY 150 SN Herbicide is influenced by environmental factors. At cool temperatures (below 10° C), poor moisture and low humidity, the speed of action may be reduced. Generally, visual symptoms appear 2-4 days after application.
- For best results, apply to emerged, young, actively growing weeds. Weeds that emerge after application will not be controlled.
- LIBERTY 150 SN Herbicide will have an effect on weeds that are larger than the recommended leaf stage, however speed of activity and control may be reduced.
- LIBERTY 150 SN Herbicide works primarily as a contact herbicide. Thorough coverage of the weeds to be controlled is essential.
- When a rate range is given the higher rate should be utilized:
 1. when the weed or crop growth is dense;
 2. when the weeds are large and/or mature - i.e., advanced leaf stages and plant height;
 3. when the environmental conditions are cool and dry.
- Refer to Section 7 for weeds controlled.

Ground Application Instructions:

- Ensure that all circuits (pipes, booms etc.) have the correct LIBERTY 150 SN Herbicide /water concentration before application is started.
- Apply LIBERTY 150 SN Herbicide in a minimum of 110 L/ha of water, at a pressure of 275 kPa and at a ground speed of 6-8 kph. If check valves are used, apply at 310 kPa. The use of 80° or 110° flat fan nozzles is highly recommended for optimum spray coverage and canopy penetration.
- Application of the spray at a 45° angle forward will result in better spray coverage. Refer to Sections 7 and 8 for the correct rate and timing of application.

Aerial Application Instructions:

- Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.
- Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.
- Exercise extreme caution during the aerial application of any insecticide, herbicide or

fungicide. Drift of pesticides is not always visible with the human eye. Small droplets may drift into sensitive areas without obvious signs of danger. Follow these directions precisely.

- When applying LIBERTY 150 SN Herbicide by aircraft, uniform spray coverage is essential. Applicators are required to use the correct combination of spray nozzle tips, nozzle placement and spray pressures which will provide a coarse droplet size distribution with a volume mean diameter greater than 350 microns. Do not use raindrop nozzles. To avoid streaked, uneven or overlapped application, use appropriate marking devices.
- **Post-emergent Use in Glufosinate Ammonium Tolerant Canola Water Volume:** Apply LIBERTY 150 SN Herbicide in a minimum of 55 L/ha of water only.

APPLICATION PRECAUTIONS

- Weed control may be reduced when heavy dew, fog or mist is present at the time of application.
- Uniform, thorough spray coverage is important to achieve consistent weed control.
- Crop injury may result if LIBERTY 150 SN Herbicide is applied to a crop stressed by severe weather conditions, frost, drought, water-saturated soil, low fertility, disease or insect damage.
- LIBERTY 150 SN Herbicide is a non-selective herbicide and has the potential to desiccate, defoliate or kill all green plants. Avoid contact with other desirable plants or crops by direct application or from spray drifts as severe damage may occur.
- **Application of LIBERTY 150 SN Herbicide to non-tolerant Canola varieties, hybrids or other non-tolerant crops will result in severe crop injury or death of the crops.**
- **To assure crop safety and optimal herbicide performance, only use LIBERTY 150 SN Herbicide on glufosinate ammonium tolerant (i.e., LibertyLink) Canola grown from certified seed.**

Plant-back Intervals:

- No plant-back interval is required for field corn, canola and soybeans, dry common beans (not grown for seed), alfalfa, carrot, lettuce, onion and potato.
- 70 days for buckwheat, barley, millet, oats, rye, sorghum, triticale, wheat, other root and leafy vegetables.
- 120 days for all other crops.

Ground Application Precautions:

- Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.
- Do NOT apply if winds exceed 16 kph when using open boom sprayers for ground application.
- Do NOT apply if winds exceed 25 kph when using hooded sprayer for ground application.
- Do not use flood jet nozzles, controlled droplet application equipment or air-assisted spray equipment.

Aerial Application Precautions:

- Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wingspan or rotorspan.
 - Read and understand the entire label before opening this product. If you have questions, call BASF Canada at 1-877-371-2273 or obtain technical advice from the distributor or your provincial agricultural representative.

Aerial Application Operator Precautions:

- Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.
- It is desirable that the pilot have communication capabilities at each treatment site at the time of application.
- The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.
- All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Rainfast Period

- If rainfall occurs within 4 hours of application, effectiveness may be reduced.

Buffer Zones:

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:		
			Freshwater Habitat of Depths:		Terrestrial Habitat
			Less than 1 m	Greater than 1 m	
Field sprayer	Canola		1	0	1
Aerial	Canola	Fixed-wing	1	0	35

		Rotary-wing	1	0	30
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For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

Section 11: Mixing Instructions
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- LIBERTY 150 SN Herbicide must be applied with properly calibrated, clean equipment.
- LIBERTY 150 SN Herbicide is specially formulated to mix readily in water.
- Prior to adding LIBERTY 150 SN Herbicide to the spray tank, ensure that the spray tank is thoroughly clean (see Section 12, “Sprayer Cleanup”).
 1. Fill the tank three-quarters full with clean water.
 2. Add the correct amount of LIBERTY 150 SN Herbicide.
 3. Add the remaining amount of water, begin agitation, and spray out immediately.

TANK-MIXES:

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

LIBERTY 150 SN Herbicide and CENTURION or SELECT: Glufosinate Ammonium Tolerant Canola only

When tank mixing LIBERTY 150 SN Herbicide and CENTURION or SELECT, always add AMIGO adjuvant to the tank first, *then* add LIBERTY 150 SN Herbicide to the tank followed by the CENTURION or SELECT.

The addition of an anti-foaming agent may reduce foaming, especially when using soft water.

1. Thoroughly clean the sprayer by flushing the system with water containing detergent (see Section 12, “Sprayer Cleanup”).
2. Fill clean spray tank half full with clean water. Start agitation system.
3. Add the correct amount of AMIGO. Continue to agitate until AMIGO is thoroughly mixed.
4. STOP agitation. Add the required amount of LIBERTY 150 SN Herbicide to the spray tank. Start agitation system.
5. Add the correct amount of CENTURION or SELECT along with the remaining amount of water necessary to fill the spray tank.
6. Continue to agitate or run the by-pass system, and spray out immediately.
7. After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to remix the spray materials. Do not allow the mixture to sit overnight.
8. If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
9. Immediately after use, thoroughly clean the sprayer by flushing the system with water containing detergent (see Section 12, “Sprayer Cleanup”).

Section 12: Sprayer Cleanup

- Before and after using LIBERTY 150 SN Herbicide always complete a thorough cleaning of the spray tank, lines, and filter. Spray equipment should be thoroughly rinsed using a strong detergent solution.

Section 13: Livestock Feeding and Preharvest Intervals

LIVESTOCK FEEDING:

Canola:

- Grain and meal from treated crop can be fed to livestock.
- Do not graze the treated crop or cut for hay; sufficient data are not available to support such use.

PREHARVEST INTERVALS:

Canola:

- When LIBERTY 150 SN Herbicide is tank mixed with Centurion or Select, observe a PHI of 60 days from the date of treatment (or last treatment when a second application has been made).
- When LIBERTY 150 SN Herbicide is tank mixed with Facet L, observe a PHI of 60 days from the date of treatment.

Section 14: Notices

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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MERGE is a registered trade-mark of BASF Canada Inc.

All other products listed are registered trade-marks or trade-marks of their respective companies.

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1. Identification

Product identifier used on the label

Liberty 150 SN Herbicide

Recommended use of the chemical and restriction on use

Recommended use*: herbicide

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Contact address:
BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1
CANADA
Telephone: +1 289 360-1300

Emergency telephone number

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

Other means of identification

PCP # 28837 + 24081

2. Hazards Identification

According to Controlled Products Regulations (CPR) (SOR/88-66)

Emergency overview

WARNING:
POISON.
Eye irritant.
Skin Irritant
KEEP OUT OF REACH OF CHILDREN.
Harmful in contact with skin.
May be fatal if absorbed through skin.

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Harmful if swallowed.
Causes eye irritation.
Avoid inhalation of mists/vapours.
Do not get in eyes, on skin, or on clothing.
Wash thoroughly after handling.

3. Composition / Information on Ingredients

According to Hazardous Products Regulations (HPR) (SOR/2015-17)

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
77182-82-2	13.5 %	Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
68891-38-3	44.1 %	Polyethyleneglycolmonoalkylethersulphate, sodium salt
107-98-2	10.0 %	1-methoxypropan-2-ol

4. First-Aid Measures

Description of first aid measures

General advice:

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing. Symptoms of poisoning may occur even after several hours, continue medical observation for at least 48 hours after the accident.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

If on skin:

Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

If in eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Do not induce vomiting. Call a poison control center or physician for treatment advice. Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., vomiting, diarrhea, abdominal cramps, tremors, hypotony, unconsciousness, coma, convulsions, respiratory disorders, nausea, rapid heart rate, Symptoms may be delayed for several hours.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote. Medical monitoring for at least 24-48 hours.

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5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, foam, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon monoxide, carbon dioxide, hydrogen cyanide, nitrogen oxides, sulfur oxides
The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:
Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Keep containers cool by spraying with water if exposed to fire. In case of fire and/or explosion do not breathe fumes. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do not breathe vapour/spray. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

Environmental precautions

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

Precautions for safe handling

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas.

Protection against fire and explosion:
No special precautions necessary. The substance/product is non-combustible. Product is not explosive.

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Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds.

Further information on storage conditions: Keep only in the original container. Keep container tightly closed in a cool, well-ventilated place. Keep away from heat. Store protected against freezing. Protect from direct sunlight.

8. Exposure Controls/Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Components with occupational exposure limits

1-methoxypropan-2-ol	OSHA PEL	TWA value 100 ppm 360 mg/m ³ ; STEL value 150 ppm 540 mg/m ³ ;
	ACGIH TLV	TWA value 50 ppm ; STEL value 100 ppm ;

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Store work clothing separately. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid
Odour:	pungent, aromatic
Odour threshold:	Not determined due to potential health hazard by inhalation.
Colour:	blue to green
pH value:	approx. 5.4 - 7.4 (10 %(m), 23 °C) (undiluted)

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Melting point:	approx. 0 °C Information applies to the solvent.
Boiling point:	approx. 101 °C
Flash point:	57 °C UN L.2 Sustained combustibility The product does not burn self-sustainingly. By analogy with a product of similar composition
Flammability:	not applicable
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Upper explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Autoignition:	455 °C
Vapour pressure:	(20 °C)
Density:	approx. 1.11 g/cm ³ (20 °C)
Vapour density:	not applicable
<i>Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt</i>	
Partitioning coefficient n-octanol/water (log Pow):	< 0.1 (22 °C)
<i>Information on: Polyethyleneglycolmonoalkylethersulphate, sodium salt</i>	
Partitioning coefficient n-octanol/water (log Pow):	0.3

Thermal decomposition:	> 200 °C
Viscosity, dynamic:	not determined
Solubility in water:	(20 °C) miscible
Evaporation rate:	not applicable
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:

Based on its structural properties the product is not classified as oxidizing.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid

See MSDS section 7 - Handling and storage.

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Incompatible materials

bases

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: ammonia, No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

> 200 °C

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Of pronounced toxicity after short-term skin contact. Of moderate toxicity after single ingestion. Inhalation is not likely in the available physical form.

Oral

Type of value: LD50

Species: rat (female)

Value: 1,730 mg/kg

Inhalation

Type of value: LC50

Species: rat (male)

Value: 2.97 mg/l

Exposure time: 4 h

The test result applies only to the substance transferred into respirable aerosol (particles < 20 µm).

Dermal

Type of value: LD50

Species: rat (male/female)

Value: 593 mg/kg

Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion

Assessment of irritating effects: May cause severe damage to the eyes. Not irritating to the skin.

Skin

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Species: rabbit
Result: non-irritant

Eye

Species: rabbit
Result: Risk of serious damage to eyes.

Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

modified Buehler test
Species: guinea pig
Result: Non-sensitizing.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
Assessment of repeated dose toxicity: Prolonged or repeated exposure may cause neurological disturbances.

Genetic toxicity

Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. In long-term studies in mice in which the substance was given by feed, a carcinogenic effect was not observed.

Reproductive toxicity

Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
Assessment of reproduction toxicity: Causes impairment of fertility in laboratory animals.

Teratogenicity

Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
Assessment of teratogenicity: The substance caused malformations/developmental toxicity in laboratory animals. The substance did not cause malformations in animal studies; however, toxicity to development was observed at doses that were toxic to the parental animals.

Other Information

Misuse can be harmful to health.

Symptoms of Exposure

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The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., vomiting, diarrhea, abdominal cramps, tremors, hypotony, unconsciousness, coma, convulsions, respiratory disorders, nausea, rapid heart rate, Symptoms may be delayed for several hours.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The product has not been tested. The statement has been derived from the properties of the individual components.

Toxicity to fish

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
LC50 (96 h) 461 mg/l, Pimephales promelas

Aquatic invertebrates

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
EC50 (96 h) > 560 mg/l, Daphnia magna

Aquatic plants

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
EC50 (72 h) 1,129 mg/l, Desmodesmus subspicatus

Persistence and degradability

Assessment biodegradation and elimination (H2O)

The product has not been tested. The statement has been derived from the properties of the individual components.

Assessment biodegradation and elimination (H2O)

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt

Not readily biodegradable (by OECD criteria).

Bioaccumulative potential

Assessment bioaccumulation potential

The product has not been tested. The statement has been derived from the properties of the individual components.

Bioaccumulation potential

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt

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*Bioconcentration factor: 0.05 - 0.3 (42 d), Lepomis macrochirus
Does not accumulate in organisms.*

Mobility in soil

Assessment transport between environmental compartments

The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt

Following exposure to soil, the product trickles away and can - dependant on degradation - be transported to deeper soil areas with larger water loads.

Additional information

Other ecotoxicological advice:

Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:

Must be sent to a suitable incineration plant, observing local regulations.

Container disposal:

Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

14. Transport Information

Land transport

TDG

Hazard class:	6.1
Packing group:	III
ID number:	UN 2902
Hazard label:	6.1
Proper shipping name:	PESTICIDE, LIQUID, TOXIC, N.O.S. (contains GLUFOSINATE AMMONIUM SOLUTION)

Sea transport

IMDG

Hazard class:	6.1
Packing group:	III
ID number:	UN 2902
Hazard label:	6.1
Marine pollutant:	NO
Proper shipping name:	PESTICIDE, LIQUID, TOXIC, N.O.S. (contains GLUFOSINATE AMMONIUM SOLUTION)

Air transport

IATA/ICAO

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Hazard class:	6.1
Packing group:	III
ID number:	UN 2902
Hazard label:	6.1
Proper shipping name:	PESTICIDE, LIQUID, TOXIC, N.O.S. (contains GLUFOSINATE AMMONIUM SOLUTION)

15. Regulatory Information

Federal Regulations

Registration status:

Chemical DSL, CA blocked / not listed

Crop Protection DSL, CA released / exempt

16. Other Information

SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2019/01/24

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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Container Label

LIBERTY[®] 200 SN HERBICIDE

GROUP	10	HERBICIDE
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**FOR SALE FOR USE ON GLUFOSINATE AMMONIUM TOLERANT
(LIBERTYLINK[®]) FIELD CORN AND ON GLUFOSINATE AMMONIUM TOLERANT
SOYBEANS IN CANADA AND ON GLUFOSINATE AMMONIUM TOLERANT
CANOLA IN EASTERN CANADA AND BRITISH COLUMBIA**

**SOLUTION
COMMERCIAL**



**CAUTION - SKIN IRRITANT
WARNING - EYE IRRITANT**

**REGISTRATION NUMBER: 25337
PEST CONTROL PRODUCTS ACT**


ACTIVE INGREDIENT: glufosinate ammonium 200 g/L

NET CONTENTS: [6 L – Bulk]

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT
1-800-454-2673**

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, Ontario
L5R 4H1
1-877-371-2273

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PRECAUTIONS: WARNING: EYE IRRITANT. CAUTION: POISON. CAUTION: SKIN IRRITANT. **KEEP OUT OF REACH OF CHILDREN.** Avoid contact with eyes, skin or clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

Protective Clothing and Equipment: Wear protective clothing including a long-sleeved shirt, long pants, goggles, chemical resistant gloves, and respirator when handling or spraying. Wear chemical resistant gloves for cleanup and repair.

Re-entry Restrictions: Workers should not enter treated fields within 24 hours of treatment. Workers who must enter fields within this time period should wear long-sleeved shirts, long pants and chemical resistant gloves. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention. If swallowed, call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person. If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice. If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice. If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION: Note to Physician: If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration.

ENVIRONMENTAL HAZARDS: TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under Directions for Use. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. Avoid spray drift onto susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES. DO NOT APPLY BY AIR.**

STORAGE: **CANNOT** be stored below freezing. If stored for 1 year or longer, shake well before using. Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs. Do not use or store in or around the home. Keep in original container during storage.

DISPOSAL: Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site: 1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank. 2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. **Returnable Container Disposal:** Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer). **Refillable Container Disposal:** For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose. **Disposal of Unused, Unwanted Product:** For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Booklet

LIBERTY[®] 200 SN HERBICIDE

GROUP

10

HERBICIDE

**FOR SALE FOR USE ON GLUFOSINATE AMMONIUM TOLERANT
(LIBERTYLINK[®]) FIELD CORN AND ON GLUFOSINATE AMMONIUM TOLERANT
SOYBEANS IN CANADA AND ON GLUFOSINATE AMMONIUM TOLERANT
CANOLA IN EASTERN CANADA AND BRITISH COLUMBIA**

**SOLUTION
COMMERCIAL**



**CAUTION - SKIN IRRITANT
WARNING - EYE IRRITANT**

**REGISTRATION NUMBER: 25337
PEST CONTROL PRODUCTS ACT**


ACTIVE INGREDIENT: glufosinate ammonium 200 g/L

NET CONTENTS: [6 L – Bulk]

READ THE LABEL AND THIS BOOKLET BEFORE USING

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT
1-800-454-2673**

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Mississauga, Ontario
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1-877-371-2273

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LIBERTY 200SN HERBICIDE

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GENERAL INFORMATION

Section 1: The Product

- LIBERTY 200SN Herbicide provides control of a broad spectrum of grassy and broadleaf weeds in Canola varieties, Corn hybrids and Soybean varieties that are specially developed to be tolerant to glufosinate ammonium (for example LibertyLink® seeds).
- LIBERTY 200SN Herbicide may also be applied to glufosinate ammonium tolerant inbred Corn lines grown for seed production.
- For Canola hybrid seed production, LIBERTY 200SN Herbicide may be used to remove segregating wild type plants within the female population. See Section 7 (Crops, Weeds, Rates, Timing - Canola Hybrid Seed Production).

SAFETY AND HANDLING

Section 2: Precautions, Protective Clothing and Equipment, and, Re-entry Restrictions

PRECAUTIONS:

WARNING: EYE IRRITANT

CAUTION: POISON

CAUTION: SKIN IRRITANT

KEEP OUT OF REACH OF CHILDREN.

Avoid contact with eyes, skin or clothing.

Avoid breathing spray mist.

Wash thoroughly after using and before eating, drinking or smoking.

Protective Clothing and Equipment:

Wear protective clothing including a long-sleeved shirt, long pants, goggles, chemical resistant gloves, and respirator when handling or spraying.

Wear chemical resistant gloves for cleanup and repair.

Re-entry Restriction:

Workers should not enter treated fields within 24 hours of treatment. Workers who must enter fields within this time period should wear long-sleeved shirts, long pants and chemical resistant gloves.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Section 3: First Aid and Toxicological Information

FIRST AID:

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION:

Note to Physician: If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration.

Section 4: Environmental Hazards

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under Directions for Use.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Avoid spray drift onto susceptible plants and USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.

Section 5: Storage

CANNOT be stored below freezing.

If stored for 1 year or longer, shake well before using.

Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs.

Do not use or store in or around the home.

Keep in original container during storage.

Section 6: Disposal

Recyclable Container Disposal:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container Disposal: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Refillable Container Disposal: For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

Disposal of Unused Spray Solution:

If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.

DIRECTIONS FOR USE

Section 7: Crops, Weeds, Rates, Timing

- Best control will be obtained when LIBERTY 200SN Herbicide is applied at the recommended leaf stages of the weeds.
- In Canola grown in Eastern Canada and British Columbia, apply LIBERTY 200SN Herbicide from the cotyledon stage up until, but prior to, the bolting stage of Canola.
- In Corn grown in Canada, apply LIBERTY 200SN Herbicide from the 1-8 leaf stage of the Corn plant or 5-6 visible collars (the leaf is counted once the next leaf is visible in the whorl).
- In Soybeans grown in Canada, apply LIBERTY 200SN Herbicide from the cotyledon to the flowering stage of the crop.

Crop	Weed	Recommended Time (Leaf Stage)								Rate
		1	2	3	4	5	6	7	8	
CANOLA, CORN, and SOYBEANS tolerant to LIBERTY 200SN Herbicide	Crabgrass	-----	-----	-----	-----	-----	-----	-----	-----	1.5 L/ha
	Giant Foxtail	-----	-----	-----	-----	-----	-----	-----	-----	
	Green Foxtail	-----	-----	-----	-----	-----	-----	-----	-----	
	Proso Millet	-----	-----	-----	-----	-----	-----	-----	-----	
	Chickweed	-----	-----	-----	-----	-----	-----	-----	-----	
	Cocklebur	-----	-----	-----	-----	-----	-----	-----	-----	
	Ragweed	-----	-----	-----	-----	-----	-----	-----	-----	
	Redroot Pigweed	-----	-----	-----	-----	-----	-----	-----	-----	
	Shepherd's- purse	-----	-----	-----	-----	-----	-----	-----	-----	

Crop	Weed	Recommended Time (Leaf Stage)								Rate
		1	2	3	4	5	6	7	8	
CANOLA, CORN, and SOYBEANS tolerant to LIBERTY 200SN Herbicide	Barnyard Grass	-----	-----	-----	-----	-----	-----	-----	-----	2 L/ha
	Bristly Foxtail	-----	-----	-----	-----	-----	-----	-----	-----	
	Fall Panicum	-----	-----	-----	-----	-----	-----	-----	-----	
	Old Witchgrass	-----	-----	-----	-----	-----	-----	-----	-----	
	Wild Oats	-----	-----	-----	-----	-----	-----	-----	-----	
	Yellow Foxtail	-----	-----	-----	-----	-----	-----	-----	-----	
	Eastern Black Nightshade	-----	-----	-----	-----	-----	-----	-----	-----	
	Lady's-thumb	-----	-----	-----	-----	-----	-----	-----	-----	
	Lamb's-quarters	-----	-----	-----	-----	-----	-----	-----	-----	
	Perennial Sowthistle	-----	-----	-----	-----	-----	-----	-----	-----	
	Ragweed	-----	-----	-----	-----	-----	-----	-----	-----	
	Stinkweed	-----	-----	-----	-----	-----	-----	-----	-----	
	Velvetleaf	-----	-----	-----	-----	-----	-----	-----	-----	
	Wild Buckwheat	-----	-----	-----	-----	-----	-----	-----	-----	
	Wild Mustard	-----	-----	-----	-----	-----	-----	-----	-----	
	Wormseed Mustard	-----	-----	-----	-----	-----	-----	-----	-----	

Jimsonweed: For control of Jimsonweed, apply LIBERTY 200SN Herbicide at a rate of 2.5 L/ha when the weeds are in the 1-6 leaf stage.

Canada Thistle and Field Bindweed: For season long suppression of Canada Thistle and Field Bindweed, apply LIBERTY 200SN Herbicide at a rate of 2 L/ha when the weeds are in the 1-6 leaf stage.

Quackgrass: For season long suppression of Quackgrass, apply LIBERTY 200SN Herbicide at a rate of 2.5 L/ha plus ammonium sulphate at a rate of 6 L/ha (49% solution) OR 3 kg/ha (99%) when the Quackgrass is in the 1-4 leaf stage.

Voluntary Crop Weeds: LIBERTY 200SN Herbicide will not control volunteer crop weeds that emerge from previous plantings of glufosinate ammonium tolerant crops.

ADDITIVES: For enhanced control of Velvetleaf and Jimsonweed, add ammonium sulphate to the tank at a rate of 6 L/ha (49% solution) OR 3 kg/ha (99%).

SECOND APPLICATION: A second application of LIBERTY 200SN Herbicide can be made to fields treated initially with up to 2.5 L/ha if new weed germination or growth is present. Apply when the new weed growth is in the correct leaf stage and up to the maximum leaf stage of the crop.

Application after the 8-leaf stage of Corn must be made with drop nozzles as a directed spray below the whorl of the Corn plant.

Application in Canola must be made prior to the bolting stage of the Canola.

Do not apply beyond the flowering stage of Soybeans.

Do not apply more than a total of 5.0 L/ha in one season.

SPLIT APPLICATION PROGRAM: For season long control of the above listed weeds a split application program with LIBERTY 200SN Herbicide can be utilised. The first application must be a minimum of 2 L/ha and at the proper weed stage. For the second application, the rate of 1.25 L/ha may be utilized provided LIBERTY 200SN Herbicide is applied as soon as the second flush of weeds occurs and before the maximum leaf stage of the crop.

FOR CANOLA HYBRID SEED PRODUCTION - Two applications are required to remove the segregating wild type plants. The first application should occur when the Canola is in the 2-4 leaf stage, the second application when the Canola plants are in the 4-6 leaf stage and the third application, if necessary, may be applied to the Canola up until, but prior to, the time of bolting. All applications of LIBERTY 200SN Herbicide for hybrid seed production should be made at 2.5 L/ha.

Section 8: Tank Mixes

Consult the label of the tank mix partner for further instructions regarding directions for use, restrictions and precautions. Certain tank mix partners may have additional restrictions for leaf staging.

For control of weeds present and/or control of later flushes of annual broadleaf weeds and/or annual grasses (see Tank Mix Directions), LIBERTY 200SN Herbicide may be tank mixed with the following herbicides when used in Eastern Canada and British Columbia:

CROP	TANK MIX PRODUCT	RATE	DIRECTIONS
CANOLA	Centurion [®] or Select [®] + Amigo Adjuvant at 0.5% v/v	63 mL/ha	For control of Volunteer Barley and improved control of Wild Oats, apply LIBERTY 200 SN Herbicide at a rate of 2.0 – 2.5 L/ha plus Centurion or Select at 63 mL/ha with adjuvant as recommended on the Centurion or Select label. Apply when the weeds are in the 1-4 leaf stage with a maximum of 2 tillers.
CORN	AAtrex Liquid 480 Herbicide*	1.75 – 2.33 L/ha	Mix with the appropriate rate of LIBERTY 200SN Herbicide for the targeted weed species. Adjust atrazine rate to the level of residual activity desired. This tank mix will not control later flushes of triazine resistant weeds.
CORN	Distinct [®]	285 g/ha	Mix with the appropriate rate of LIBERTY 200 SN Herbicide for the targeted weed species. This tank mix will provide enhanced control of labeled annual broadleaf weeds.
CORN	Marksman [®]	2.5 – 3.7 L/ha	Mix with the appropriate rate of LIBERTY 200SN Herbicide for the targeted weed species. Adjust Marksman rate to the level of residual activity desired. This tank mix will provide residual control of annual grasses and annual broadleaf weeds.
CORN	Prowl [®] 400 EC*	2.5 L/ha	Mix with the appropriate rate of LIBERTY 200SN Herbicide for the targeted weed species. This tank mix will provide residual control of annual grasses, Lamb's-quarters and Redroot Pigweed.
CORN	VIOS G3	110 mL/ha	Mix with the appropriate rate of LIBERTY 200SN Herbicide for the targeted weed

			species. This tank mix will provide residual control of annual grasses and annual broadleaf weeds.
SOYBEAN	Pursuit®	312 mL/ha	Mix with the appropriate rate of LIBERTY 200SN Herbicide for the targeted weed species. This tank mix will provide residual control of annual grasses and annual broadleaf weeds.
SOYBEAN	Basagran® Forte	1.75 L/ha	Mix with the appropriate rate of LIBERTY 200SN Herbicide for the targeted weed species. This tank mix will provide enhanced control of annual broadleaf weeds.
SOYBEAN	FirstRate®	20.8 g/ha	Mix with the appropriate rate of LIBERTY 200SN Herbicide for the targeted weed species. This tank mix will provide residual control of common ragweed, velvetleaf and lamb's-quarters.
SOYBEAN	Excel® Super	450 mL/ha	Mix with the appropriate rate of LIBERTY 200SN Herbicide for the targeted weed species. This tank mix will provide control of volunteer corn, including herbicide tolerant hybrids.

*for atrazine and Prowl products with different concentration, adjust the rate accordingly.

Note: Do not tank mix LIBERTY 200SN Herbicide with fertilizers or any other chemical additives unless recommended on this label.

Section 9: Resistance Management Recommendations

For resistance management, LIBERTY 200SN Herbicide is a Group 10 herbicide. Any weed population may contain or develop plants naturally resistant to LIBERTY 200SN Herbicide and other Group 10 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of LIBERTY 200SN Herbicide or other Group 10 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact your local BASF Canada representative at 1-877-371-2273.

Section 10: Application Instructions and Cautions

Application Instructions:

- For best results, apply to emerged, young, actively growing weeds. Weeds that emerge after application will not be controlled.
- LIBERTY 200SN Herbicide will have an effect on weeds that are larger than the recommended leaf stage, however speed of activity and control may be reduced.
- Apply LIBERTY 200SN Herbicide in a minimum of 110 L/ha of water, at a pressure of 175-275 kPa and at a ground speed of 6-10 kph. The use of 80° or 110° flat fan nozzles is highly recommended for optimum spray coverage and canopy penetration.
- Application of the spray at a 45° angle forward will result in better spray coverage. Follow directions elsewhere on the label for the correct rate and timing of application.
- The speed of action of LIBERTY 200SN Herbicide is influenced by environmental factors. At cool temperatures (below 10°C), poor moisture and low humidity, speed of action may be reduced. Generally, visual symptoms appear 2-4 days after application.
- IF RAINFALL OCCURS WITHIN 4 HOURS OF APPLICATION, EFFECTIVENESS MAY BE REDUCED.
- Weed control may be reduced when heavy dew, fog or mist are present at the time of application.
- LIBERTY 200SN Herbicide works primarily as a contact herbicide. Thorough coverage of the weeds to be controlled is essential.
- As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

- DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Application Cautions:

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

- **GROUND APPLICATION ONLY. DO NOT APPLY BY AIR.**
- Do not use flood jet nozzles, controlled droplet application equipment or air-assisted spray equipment.
- Uniform, thorough spray coverage is important to achieve consistent weed control.
- DO NOT apply if winds exceed 16 kph when using open boom sprayers. DO NOT apply if winds exceed 25 kph when using hooded sprayers.
- Avoid contact with desirable plants or crops either from direct application or from spray drift as severe damage may occur.
- Plant back Intervals:
 - 70 days for Buckwheat, Barley, Millet, Oats, Rye, Sorghum, Triticale and Wheat.
 - 120 days for all other crops except Field Corn, Canola and Soybeans. No plant back interval is required for Field Corn, Canola or Soybeans.
- Application of LIBERTY 200SN Herbicide to non-tolerant crops will result in severe crop injury or death of the crop.
- **SUSCEPTIBLE WEEDS:** LIBERTY 200SN Herbicide has an effect on all weeds and crops except for those crops which are developed to be tolerant to applications of LIBERTY 200SN Herbicide, including when they become voluntary weeds.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of:		
		Freshwater Habitat of Depths:		Terrestrial Habitat
		Less than 1 m	Greater than 1 m	
Field Sprayer	Corn, Canola, Soybean	1	0	1

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank-mix partners.

Section 11: Mixing Instructions

LIBERTY 200SN Herbicide must be applied with properly calibrated, clean equipment.

LIBERTY 200SN Herbicide is specially formulated to mix readily in water.

Prior to adding LIBERTY 200SN Herbicide to the spray tank, ensure that the spray tank is thoroughly clean (see Section 12 “SPRAYER CLEANUP”).

1. Fill tank to three-quarters full with clean water prior to adding LIBERTY 200SN Herbicide.
2. Add the correct amount of LIBERTY 200SN Herbicide.
3. Add the remaining amount of water, begin agitation, and spray out immediately.

Note: With the exception of use with CENTURION or SELECT, when tank mixing LIBERTY 200SN Herbicide always add the tank mix partner to the tank first, ensure that it is thoroughly mixed, THEN add LIBERTY 200SN Herbicide. When using ammonium sulphate, ALWAYS add it to the tank first, prior to the addition of the tank mix partner and LIBERTY 200SN Herbicide. Refer to the following specific instructions for mixing with CENTURION or SELECT.

LIBERTY 200 SN Herbicide and CENTURION or SELECT: Glufosinate Ammonium Tolerant Canola only

When tank mixing LIBERTY 200 SN Herbicide and CENTURION or SELECT, always add AMIGO adjuvant to the tank first, *then* add LIBERTY 200 SN to the tank followed by the CENTURION or SELECT.

The addition of an anti-foaming agent may reduce foaming, especially when using soft water.

1. Thoroughly clean the sprayer by flushing the system with water containing detergent (see Section 12, “Sprayer Cleanup”).
2. Fill clean spray tank half full with clean water. Start agitation system.
3. Add the correct amount of AMIGO. Continue to agitate until AMIGO is thoroughly mixed.
4. STOP agitation. Add the required amount of LIBERTY 200 SN Herbicide and Crop Desiccant MP to the spray tank. Start agitation system.
5. Add the correct amount of CENTURION or SELECT along with the remaining amount of water necessary to fill the spray tank.
6. Continue to agitate or run the by-pass system, and spray out immediately.

7. After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to remix the spray materials. Do not allow the mixture to sit overnight.
8. If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
9. Immediately after use, thoroughly clean the sprayer by flushing the system with water containing detergent (see Section 12, “Sprayer Cleanup”).

Note: The addition of an anti-foaming agent may reduce foaming, especially when using soft water.

Note: Ensure that all circuits (pipes, booms, etc.) have the correct LIBERTY 200SN Herbicide/water concentration before application is started.

Section 12: Sprayer Cleanup

Before and after using LIBERTY 200SN^{Herbicide} always complete a thorough cleaning of the spray tank, lines and filter. Spray equipment should be thoroughly rinsed using a strong detergent solution.

Section 13: Livestock Feeding and Preharvest Intervals (PHIs)

CANOLA:

- Grain and meal from treated Canola can be fed to livestock.
- DO NOT graze or feed other portions of the treated Canola to livestock; there are not sufficient data to support such use.
- When LIBERTY 200SN Herbicide is tank mixed with CENTURION or SELECT, observe a PHI of 60 days from the date of treatment (or last treatment when a second application has been made).

CORN:

- DO NOT apply within 86 days of harvesting Corn grain.
- DO NOT graze the treated fields within 20 days of application.

SOYBEAN:

- DO NOT apply within 70 days of harvesting Soybean seed.
- DO NOT graze the treated fields within 20 days of application.

Section 14: Notices

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

All other products listed are registered trademarks or trademarks of their respective companies.

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1. Identification

Product identifier used on the label

Liberty 200 SN Herbicide

Recommended use of the chemical and restriction on use

Recommended use*: herbicide

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Contact address:
BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1
CANADA
Telephone: +1 289 360-1300

Emergency telephone number

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

Other means of identification

PCP # 25337

2. Hazards Identification

According to Controlled Products Regulations (CPR) (SOR/88-66)

Emergency overview

CAUTION:
POISON.
Skin Irritant
WARNING:
Eye irritant.
KEEP OUT OF REACH OF CHILDREN.
Irritating to eyes.

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Irritating to skin.
Avoid contact with the skin, eyes and clothing.
Avoid inhalation of mists/vapours.
Wash thoroughly after handling.

3. Composition / Information on Ingredients

According to Hazardous Products Regulations (HPR) (SOR/2015-17)

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
77182-82-2	18.19 %	Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
68891-38-3	21.0 %	Polyethyleneglycolmonoalkylethersulphate, salts
107-98-2	10.0 %	1-methoxypropan-2-ol

4. First-Aid Measures

Description of first aid measures

General advice:

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

If on skin:

Immediately wash thoroughly with soap and water, seek medical attention.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Do not induce vomiting. Call a poison control center or physician for treatment advice. Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., vomiting, diarrhea, abdominal cramps, tremors, hypotony, unconsciousness, coma, convulsions, respiratory disorders, nausea, rapid heart rate, Symptoms may be delayed for several hours.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

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5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, foam, carbon dioxide

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon monoxide, carbon dioxide, nitrogen oxides
The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:
Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Keep containers cool by spraying with water if exposed to fire. In case of fire and/or explosion do not breathe fumes. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do not breathe vapour/spray. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

Environmental precautions

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

Precautions for safe handling

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:
No special precautions necessary. The substance/product is non-combustible. Product is not explosive.

Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds.

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Further information on storage conditions: Keep only in the original container. Keep container tightly closed and dry; store in a cool place. Keep away from heat. Protect from direct sunlight. Protect from frost.

8. Exposure Controls/Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Components with occupational exposure limits

1-methoxypropan-2-ol	OSHA PEL	TWA value 100 ppm 360 mg/m ³ ; STEL value 150 ppm 540 mg/m ³ ;
	ACGIH TLV	TWA value 50 ppm ; STEL value 100 ppm ;

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

The statements on personal protective equipment in the instructions for use apply when handling crop-protection agents in final-consumer packing. Wearing of closed work clothing is recommended. Store work clothing separately. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid
Odour:	pungent
Odour threshold:	Not determined due to potential health hazard by inhalation.
Colour:	blue
pH value:	approx. 5.5 - 7.5 (100 %(m), 20 °C) (as such)
Melting point:	approx. 0 °C Information applies to the solvent.
Boiling point:	approx. 100 °C Information applies to the solvent.

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Flash point:	approx. 65 °C
Flammability:	not applicable
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Upper explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Autoignition:	Based on the water content the product does not ignite.
Vapour pressure:	approx. 23 hPa (20 °C) Information applies to the solvent.
Density:	approx. 1.10 g/cm ³ (20 °C)
Vapour density:	not applicable
Partitioning coefficient n-octanol/water (log Pow):	not applicable
Thermal decomposition:	400 °C No decomposition if stored and handled as prescribed/indicated.
Viscosity, kinematic:	No data available.
Solubility in water:	miscible
Evaporation rate:	not applicable
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:

Based on its structural properties the product is not classified as oxidizing.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid

Avoid excessive temperatures. Avoid direct sunlight. See MSDS section 7 - Handling and storage.

Incompatible materials

bases

Hazardous decomposition products

Decomposition products:

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Hazardous decomposition products: ammonia, No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
400 °C

No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Of moderate toxicity after single ingestion. Of moderate toxicity after short-term skin contact. Inhalation is not likely in the available physical form. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Oral

Type of value: LD50
Species: rat (female)
Value: 1,910 mg/kg

Type of value: LD50
Species: rat (male)
Value: 2.170 mg/kg

Inhalation

Type of value: LC50
Species: rat (male)
Value: 3.22 mg/l
Exposure time: 4 h

The test result applies only to the substance transferred into respirable aerosol (particles < 20 µm).

Type of value: LC50
Species: rat (female)
Value: 4.31 mg/l
Exposure time: 4 h

The test result applies only to the substance transferred into respirable aerosol (particles < 20 µm).

Dermal

Type of value: LD50
Species: rat (female)
Value: 1,380 mg/kg

Type of value: LD50
Species: rat (male)
Value: 1,400 mg/kg

Assessment other acute effects

Assessment of STOT single:

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Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion

Assessment of irritating effects: Eye contact causes irritation. Not irritating to the skin.

Skin

Species: rabbit
Result: Slightly irritating.

Eye

Species: rabbit
Result: Irritating.

Sensitization

Assessment of sensitization: Sensitization after skin contact possible.

modified Buehler test

Species: guinea pig
Result: Non-sensitizing.
Method: OECD Guideline 406

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
Assessment of repeated dose toxicity: Prolonged or repeated exposure may cause neurological disturbances.

Genetic toxicity

Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. In long-term studies in mice in which the substance was given by feed, a carcinogenic effect was not observed.

Reproductive toxicity

Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
Assessment of reproduction toxicity: Causes impairment of fertility in laboratory animals.

Teratogenicity

Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

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Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt
Assessment of teratogenicity: The substance caused malformations/developmental toxicity in laboratory animals. The substance did not cause malformations in animal studies; however, toxicity to development was observed at doses that were toxic to the parental animals.

Other Information

Misuse can be harmful to health.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., vomiting, diarrhea, abdominal cramps, tremors, hypotony, unconsciousness, coma, convulsions, respiratory disorders, nausea, rapid heart rate, Symptoms may be delayed for several hours.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Harmful to aquatic life.

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Toxicity to fish

LC50 (96 h) 34 mg/l, Oncorhynchus mykiss

Aquatic invertebrates

EC50 (48 h) 26.8 mg/l, Daphnia magna

Aquatic plants

EC50 (72 h) 36 mg/l, Desmodemus subspicatus

Persistence and degradability

Assessment biodegradation and elimination (H2O)

The product has not been tested. The statement has been derived from the properties of the individual components.

Assessment biodegradation and elimination (H2O)

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt

Not readily biodegradable (by OECD criteria).

Bioaccumulative potential

Assessment bioaccumulation potential

The product has not been tested. The statement has been derived from the properties of the individual components.

Bioaccumulation potential

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Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt

*Bioconcentration factor: 0.05 - 0.3 (42 d), Lepomis macrochirus
Does not accumulate in organisms.*

Mobility in soil

Assessment transport between environmental compartments

The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Butanoic acid, 2-amino-4-(hydroxymethylphosphinyl)-, monoammonium salt

Following exposure to soil, the product trickles away and can - dependant on degradation - be transported to deeper soil areas with larger water loads.

Additional information

Other ecotoxicological advice:
Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:

See product label for disposal and recycling instructions.

Container disposal:

Rinse the container or liner as needed for disposal. Add rinsate to spray tank. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. Consult the product label for additional details.

14. Transport Information

Land transport

TDG

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

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Registration status:

Chemical DSL, CA blocked / not listed

Crop Protection DSL, CA released / exempt

According to Controlled Products Regulations (CPR) (SOR/88-66)

Not WHMIS controlled.

16. Other Information

SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2019/01/23

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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END OF DATA SHEET



Dow AgroSciences

Lorsban™ 4E Insecticide

GROUP

1B¹

INSECTICIDE

- This product is not to be used in and around homes or other residential areas such as parks, school grounds, playing fields. It is not for use by homeowners or other uncertified users.
- Emulsifiable concentrate, contains chlorpyrifos

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

GUARANTEE: chlorpyrifos 480 g/L

REGISTRATION NO. 14879 PEST CONTROL PRODUCTS ACT

DANGER  **POISON**

**EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: 10 L - bulk

Dow AgroSciences Canada Inc.
Suite 2100, 450 - 1 Street S.W.
Calgary, Alberta
T2P 5H1
1-800-667-3852

™Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

PRECAUTIONS
FATAL OR POISONOUS IF SWALLOWED
HARMFUL IF ABSORBED THROUGH SKIN
CAUSES EYE AND SKIN IRRITATION
POTENTIAL SKIN SENSITIZER
KEEP OUT OF REACH OF CHILDREN

Do not get in eyes, on skin or on clothing. Avoid breathing vapour or spray mist. Handle only with adequate ventilation. Wear protective clothing, impervious gloves and chemical worker's goggles when handling. Wash thoroughly with soap and water after handling and before eating or smoking. Immediately remove contaminated clothing and wash before reuse. Destroy contaminated leather articles including shoes. Do not apply this product in such a manner as to directly or through drift expose workers or other persons. This product has been shown to be a skin sensitizer in laboratory animal studies. Repeated exposure may cause allergic reaction in sensitive individuals. If this should happen, discontinue use and consult a physician. Keep away from food, feedstuffs and water supplies.

PRECAUTIONS FOR MIXERS/LOADERS

For containers more than 10 L:

Mixers/loaders must use a closed mechanical transfer loading system. Mixers/loaders must wear:

- coveralls over a long-sleeved shirt and long pants
- chemical-resistant gloves
- an air-purifying respirator with an -R or -P series filter
- shoes and socks

For containers holding 10 L or less:

Mixers/loaders must wear:

- coveralls over a long-sleeved shirt and long pants
- chemical-resistant gloves
- a chemical-resistant apron
- chemical-resistant footwear plus socks
- an air-purifying respirator equipped with an -R or -P series filter

PRECAUTIONS FOR APPLICATORS

Do not apply with high-pressure handwand equipment.

Applicators using ground application equipment with a closed cab must wear:

- a long-sleeved shirt and long pants
- chemical-resistant gloves when leaving cab for clean up and repair (gloves must be removed when re-entering the cab)
- socks and shoes

Applicators using ground application equipment with an open cab must wear:

- coveralls over a long-sleeved shirt and long pants
- chemical-resistant gloves
- socks and shoes

Applicators using aerial application equipment must use enclosed cockpits and must wear:

- a long-sleeved shirt and long pants
- socks and shoes

Applicators using handheld equipment must wear:

- a long-sleeved shirt and long pants
- chemical-resistant coveralls and head protection (if spray is upwardly directed)
- chemical-resistant footwear and socks
- chemical-resistant gloves
- an air purifying respirator with an -R or -P series filter

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Do not use or store near heat or open flame.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

Chlorpyrifos is an organophosphate that is a cholinesterase inhibitor. Typical symptoms of overexposure to cholinesterase inhibitors include headache, nausea, dizziness, sweating, salivation, runny nose and eyes. This may progress to muscle twitching, weakness, tremors, incoordination, vomiting, abdominal cramps and diarrhea in more serious poisonings. A life-threatening poisoning is signified by loss of consciousness, incontinence, convulsions and respiratory depression with a secondary cardiovascular component. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate degree of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as pralidoxime chloride, may be therapeutic if used early; however, use only in conjunction with atropine. In cases of severe acute poisoning, use antidotes immediately after establishing an open airway and respiration. With oral exposure, the decision of whether to induce vomiting or not should be made by an attending physician.

NOTE: Product contains a petroleum distillate solvent. Vomiting may cause aspiration pneumonia.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

Lorsban 4E is toxic to birds and wildlife and extremely toxic to fish and aquatic organisms. Do not apply directly to water. Drift and run-off from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Spilled material should be soaked up with absorbent material and disposed of in an approved manner. Do not contaminate water by cleaning of equipment or disposal of waste. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Avoid use when bees are actively foraging. Cereals grown for cover crop treated with Lorsban 4E insecticide should not be harvested for human or animal consumption if treated within 60 days of harvest.

This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

- TOXIC to birds. Any spilled or exposed granules must be incorporated into the soil or otherwise cleaned-up from the soil surface.
- TOXIC to wild mammals. Any spilled or exposed granules must be incorporated into the soil or otherwise cleaned-up from the soil surface.
- TOXIC to bees exposed to direct treatment, drift, or residues on blooming plants. Do not use on flowering crops or weeds.
- TOXIC to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland.
- DO NOT apply this product or allow it to drift to flowering crops or weeds if bees are visiting the treatment area. Applicators should inform local bee keepers prior to application if hives are in adjacent fields. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site.
- To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g., soils that are compacted or fine textured such as clay).
- Avoid application of this product when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.
- COMBUSTIBLE: Do not use or store near heat or open flame.

STORAGE

Do not contaminate water, food or feed by storage or disposal of wastes. Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. Do not store above 37° C for extended periods of time. Storage below 6.6° C may result in formation of crystals. If product crystallizes, store at 10 to 21° C and agitate to redissolve crystals. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Lorsban 4E is active against various insect pests by inhalation, contact and ingestion. It is not systemic in the plant system. This product is decomposed by sunlight. Treatment of plants that are under extreme drought stress may result in some crop damage.

MIXING INSTRUCTIONS

To prepare the spray, add approximately 1/4 of the required amount of water to the spray tank and with agitation add the Lorsban 4E. Complete filling the tank with the balance of water needed. Do not allow the pesticide to come in contact with the water intake pipe. Maintain sufficient agitation during both mixing and application to ensure uniformity of the spray mixture. To avoid damage to the crop mix Lorsban 4E only with pesticides listed on this label.

DIRECTIONS FOR USE

GENERAL USE PRECAUTIONS

- **DO NOT** apply this product directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries habitats or marine habitats.
- **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- Application by aircraft is permitted only where specified in the directions for use.
- A plantback interval of 30 days must be observed between application and planting of rotational crops, with the exception of radish, Chinese cabbage, pak choi and cole crops for which no plantback restriction is required
- Do not formulate this product into other end use products.

For all applications: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty.

Soil Applications

The higher rate of Lorsban 4E should be used when the soil surface is extremely dry or the insect infestation is heavy. When preplant soil applications of Lorsban 4E are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.

Foliar Applications

Best results will be obtained when application is made during the early evening. Apply as a broadcast application in sufficient water to ensure thorough coverage of the foliage.

Field Sprayer Applications ^{1,2}

Rate of Application (g a.i./ha)	Buffer Zones (metres) Required for the Protection of Aquatic Habitats With Water Depths Of:		
	< 1 metre	1–3 metre	> 3 metre
Up to 576	50	40	30
Greater than 576, and less than or equal to 1152	55	45	35
Greater than 1152 and up to 2304	60	50	40

¹ For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy or ground, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy or ground, the labelled buffer zone can be reduced by 30%.

² Buffer zones are not required for treatments applied as a drench (i.e., drench applications for control of cabbage maggot, onion maggot and seedcorn maggot).

Aerial Application

For aerial applications: DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. The nozzle type is restricted to CP®, with the following set-up restriction:

Nozzle Type	Restriction
CP®	DO NOT use greater than 30° deflection

For all aerial applications, a buffer zone of 100 metres is required for the protection of aquatic habitats.

Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. **Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.**

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

See specific crop instructions for additional precautions and recommended application rates.

SITES, PESTS, RATES AND DIRECTIONS

Economic thresholds are not given on this label. Apply Lorsban 4E when recommended by provincial authorities and according to provincial guidelines. **Do not add any additional adjuvants, surfactants or spreader stickers to Lorsban 4E.**

Sites and Pests	Rates and Directions
CANOLA	Do not apply more than once per season. Do not apply within 21 days of harvest. Application is permitted by ground application equipment or aircraft where specified. Do not enter treated fields until 1 day after application.

Bertha armyworm, alfalfa looper, armyworm	Apply 750 millilitres (ml) -1.0 litres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply as a foliar spray. Use the higher rate of dilution when infestations are heavy and when the foliage is dense. Spray in the evening to reduce harm to pollinators.
Diamondback moth (larvae)	Apply 1.0 – 1.5 litres of product in 100–200 L/ha for ground application equipment, or in 40 L/ha for aircraft. Apply as a foliar spray. Use the higher rate of dilution when infestations are heavy and when the foliage is dense. Spray in the evening to reduce harm to pollinators.
Lygus bugs	Apply 500 ml – 1.0 litres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply as a foliar spray. Use the higher rate of dilution when infestations are heavy and when the foliage is dense. Spray in the evening to reduce harm to pollinators.
Army cutworm, darksided cutworm, pale western cutworm, redbacked cutworm, variegated cutworm	Apply 875 ml – 1.2 litres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply to the soil or foliage. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.
Grasshoppers	Apply 580 – 875 millilitres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply as a foliar spray. Use the low rate for the control of juvenile grasshoppers and the high rate for the control of adult grasshoppers. Adjacent ungrazed and unoccupied areas such as roadsides, rights-of-way and fence lines should be treated at the first sign of infestation.
FLAX	Do not apply more than once per season. Do not apply within 21 days of harvest. Application is permitted by ground application equipment or aircraft where specified. Do not enter treated fields until 1 day after application.
Bertha armyworm	Apply 750 ml – 1.0 litres of product in 50–200 L/ha for ground application equipment and 10–30 L/ha for aircraft. Apply as a foliar spray. Use the higher rate for larger larvae or when foliage is dense.
Army cutworm, darksided cutworm, pale western cutworm, redbacked cutworm, variegated cutworm, armyworm	Apply 875 ml – 1.2 litres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply to the soil or foliage.
LENTIL	Application is permitted by ground application equipment or aircraft where specified. Do not apply more than once per season. Do not apply within 21 days of harvest for applications up to 420 g a.i./ha. For application greater than 420 g a.i./ha, do not apply within 60 days of harvest. Do not enter treated fields until 1 day after application.

Pale western cutworm	Apply 875 ml – 1.2 litres of product in 100–200 L/ha for ground application equipment, or in at least 20 L/ha for aircraft. Apply as a broadcast spray when damage first appears.
Grasshoppers	Apply 580 ml – 1.2 litres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply once per year at the flowering to early podding stage of crop. Uniform coverage of the crop and the crop canopy is essential. Use the low rate for the control of juvenile grasshoppers and the high rate for the control of adult grasshoppers. Adjacent ungrazed and unoccupied areas such as roadsides, right-of-ways and fence lines should be treated at the first sign of infestation.
CORN (FIELD, SWEET)	Do not apply more than 1 application per season. Do not apply within 70 days of harvest. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application.
Black cutworm, darksided cutworm, redbacked cutworm	SOIL TREATMENT (PREPLANTING) Apply 2.4 litres of product in 200–400 L/ha. Apply once as a soil treatment 3–7 days before planting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows. SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.
STRAWBERRY	Do not apply more than once per season. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply within 20 days of harvest. Do not enter treated fields until 1 day after application.
Strawberry cutworm (crown borer)	Apply 1.2 litres of product in 2000 L/ha. Apply once as a foliar spray between June 1 and June 15. Large volumes of water are desirable to ensure full wetting of the crown area of the plants.
CELERY, CUCUMBER, PEPPER (GREEN)	Do not apply more than once per season. Do not apply within 70 days of harvest for celery, 40 days of harvest for pepper, or 60 days of harvest for cucumber. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application.
Black cutworm, darksided cutworm, redbacked cutworm	SOIL TREATMENT Apply 2.4 litres of product in 200–400 L/ha. Apply once as a soil treatment 3–7 days before planting or transplanting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows. SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.

<p>PAK CHOI, BROCCOLI, BRUSSELS SPROUT, CABBAGE, CAULIFLOWER, CHINESE CABBAGE</p>	<p>Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application for pak choi and Chinese cabbages. Do not enter treated fields until 10 days after application for cauliflower, 1 day after application for all other crops. [See also below.]</p> <p>If no granular chlorpyrifos treatment has been used, do not apply more than twice per season to broccoli, cabbages, cauliflower, Chinese cabbages and pak choi, or three times per season to Brussels sprouts. If granular treatment has been used, do not apply more than once per season to broccoli, cabbages, cauliflower, Chinese cabbages and pak choi, or twice per season to Brussels sprouts. Do not apply within 32 days of harvest for broccoli, Brussels sprouts, cabbages, cauliflower or Chinese cabbages; or within 15 days of harvest for pak choi.</p>
<p>Cabbage maggot</p>	<p>AT-PLANTING TREATMENT: Apply 210 millilitres of product/1000 m row. Apply one drench spray in 1000 L/ha spray solution, 10 cm on each side of the plant, 7–10 days after seeding or 3 days after transplanting.</p> <p>POST PLANTING DRENCH: Mix 1.68 litres of product in enough water to make 1000 L of finished spray. Apply 12.5 L of this solution per 100 m of row on soil, 10 cm on each side of the plant. Do not apply to harvestable portions of the crop.</p> <p>If no granular treatment was used at seeding: For broccoli, Brussels sprouts, cabbages and cauliflower, apply a drench treatment within 3 days of transplanting (after plant recovery) or 7–10 days after seeding. Repeat 21 days after the transplanting drench or 28 days after the seeding drench.</p>
<p>Black cutworm, darksided cutworm, rebacked cutworm (for BROCCOLI, BRUSSEL SPROUTS, CABBAGE, CAULIFLOWER, CHINESE CABBAGE)</p>	<p>SOIL TREATMENT Apply 2.4 litres of product in 200–400 L/ha. Apply once, 3–7 days before transplanting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows.</p> <p>SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.</p>
<p>GARLIC</p>	<p>Do not apply more than twice per season. Do not apply within 50 days of harvest. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application.</p>
<p>Onion maggot</p>	<p>Apply 3.5 litres of product . in 1000 L/ha. Apply as a drench to the soil over the seedling row.</p>

Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 litres of product in 200–400 L/ha. Apply once, 3–7 days before transplanting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows.</p> <p>SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.</p>
RUTABAGA	<p>Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application. Do not apply within 30 days of harvest. [See also below.]</p> <p>If no granular chlorpyrifos treatment has been used, do not apply more than 4 times per season. If granular chlorpyrifos treatment has been used, do not apply more than 3 times per season.</p>

Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 litres of product in 200–400 L/ha. Apply once, 3–7 days before transplanting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows.</p> <p>SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.</p>
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Cabbage maggot	<p>Apply 210 millilitres of product in 125 L/1000 m row. Apply as a postplanting drench to soil, 10 cm on each side of the plant. Application rates for different row spacings are as follows:</p> <table border="0"> <thead> <tr> <th>Row Spacing</th> <th>litres product/ha</th> </tr> </thead> <tbody> <tr> <td>30 cm</td> <td>7.0</td> </tr> <tr> <td>60 cm</td> <td>3.5</td> </tr> <tr> <td>75 cm</td> <td>2.8</td> </tr> <tr> <td>80 cm</td> <td>2.63</td> </tr> <tr> <td>90 cm</td> <td>2.33</td> </tr> <tr> <td>105 cm</td> <td>2.0</td> </tr> </tbody> </table> <p>Do not apply to harvestable portions of the crop. If no granular treatment was used at seeding, apply drench treatments at 10, 28, 49 and 70 days after seeding. If granular treatment with a chlorpyrifos insecticide was used at seeding, apply drench treatments at 28, 49 and 70 days after seeding.</p>	Row Spacing	litres product/ha	30 cm	7.0	60 cm	3.5	75 cm	2.8	80 cm	2.63	90 cm	2.33	105 cm	2.0
Row Spacing	litres product/ha														
30 cm	7.0														
60 cm	3.5														
75 cm	2.8														
80 cm	2.63														
90 cm	2.33														
105 cm	2.0														

POTATO	<p>Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply more than once per season. Do not apply within 7 days of harvest. Do not enter treated fields to conduct scouting, hand weeding or irrigation activities until 1 day after application.</p>
Colorado potato beetle (larvae), potato flea beetle, tarnished plant bug	<p>Apply 1.0 litres of product in 400–800 L/ha as a foliar spray.</p>

Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 litres of product . in 200–400 L/ha. Apply once as a broadcast spray 3–7 days before planting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows.</p> <p>SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray when damage first appears.</p>
SUNFLOWER	Application is permitted by ground application equipment or aircraft where specified. Do not apply more than once per season. Do not apply within 42 days of harvest. Do not enter treated fields until 1 day after application.
Army cutworm, pale western cutworm, redbacked cutworm	Ground application only (DO NOT APPLY BY AIRCRAFT). Apply 1.2 litres of product in 50–200 L/ha. DO NOT APPLY BY AIRCRAFT. Apply as a broadcast spray when damage first appears. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.
Seed weevil	Ground or aerial application. Apply 1.2 litres of product in at least 20 L/ha. Apply in late July to early August when populations of weevils are observed in the sunflower heads.
SUGARBEET	Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply more than once per season. Do not apply within 90 days of harvest. Do not enter treated fields until 1 day after application.
Pale western cutworm, redbacked cutworm	Apply 1.2 – 2.4 litres of product in 50–200 L/ha. Apply as a broadcast spray to crop seedlings when damage first appears. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.
BARLEY, WHEAT, OATS	Do not apply more than once per season to barley or wheat. Do not apply within 60 days of harvest. Application is permitted by ground application equipment or aircraft where specified. Do not enter treated fields until 1 day after application.
Armyworm (including bertha armyworm), army cutworm, darksided cutworm, pale western cutworm, redbacked cutworm	Apply 875 ml – 1.2 litres of product in 50–200 L/ha for ground application equipment or in 10–30 L/ha for aircraft. Apply to soil or foliage. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.
Grasshoppers	Apply 580-875 millilitres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply as a broadcast foliar spray. Use the low rate for juvenile grasshoppers and the high rate for adults. Treat adjacent ungrazed and unoccupied areas such as roadsides, rights-of-way and fence lines at the first sign of infestation.

Brown wheat mite	Apply 625 millilitres of product in 50–200 L/ha for ground application equipment or in 10–30 L/ha for aircraft. Apply as a foliar spray.
Russian wheat aphid	Apply 500 millilitres of product . in a minimum of 100 L/ha for ground application equipment or in a minimum of 20 L/ha for aircraft. Apply as a foliar spray.
Orange wheat blossom midge (WHEAT only)	Apply 830 ml – 1.0 litres of product in 50–200 L/ha for ground application. Apply 1.0 litres of product in 10–30 L/ha for aerial application. Apply when adults reach the economic threshold and when 25% of the wheat heads have emerged from the boot, but preferably delay spraying until 30% of the crop is flowering. Timing is critical to ensure good control. Applications should be made in the late afternoon or early evening when temperatures exceed 15°C and wind speed is less than 10 km/h.
ONION (bulb, pickling)	Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply more than once per season. Do not enter treated fields until 1 day after application. Do not apply to bunching onions. [See also below.]
Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 – 4.8 litres of product in 200–400 L/ha. Apply once per season before planting or transplanting. Application is also permitted on a 15 m strip adjacent to fence rows. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.</p> <p>SEEDLING TREATMENT Apply 2.4 – 4.8 litres of product in 200–400 L/ha. Apply as a broadcast spray at the 2- to 5-leaf stage. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry.</p>
TOBACCO	Do not apply more than once per season. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application.
Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 – 4.8 litres of product in 200–400 L/ha. Apply once, 3–7 days before planting or transplanting. If the top 1 cm or more of soil is dry, use the higher rate. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm. Also apply to a 15 m strip into adjacent cover crop and to fence rows.</p>

Darksided cutworm	<p>COVER CROP TREATMENT Apply 1.125 - 1.2 litres of product in 200–400 L/ha. Darksided cutworms may feed on the cover crop before spring plough-down. Apply to the area planted to tobacco and to a strip about 15 m into nearby cover crop and fence rows. Application should be made in mid to late April, 4 to 5 days before plough-down. When the rye cover crop is about 15 cm tall, the cutworm larvae will be at the right stage for the best control. Cereals grown for cover crop treated with this insecticide should not be used for human or animal consumption if treated within 60 days of harvest.</p>
Carrot	<p>Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply more than once per season. Do not enter treated fields until 1 day after application. Do not apply within 60 days of harvest</p>

Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 – 4.8 litres of product in 200–400 L/ha. Apply once per season before planting. Application is also permitted on a 15 m strip adjacent to fence rows. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.</p> <p>SEEDLING TREATMENT Apply 2.4 – 4.8 litres of product in 200–400 L/ha. Apply as a broadcast spray at the 2- to 5-leaf stage. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry.</p>
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Preharvest Intervals

Time Between Last Application and Harvest	
Crop	Days
potato	7
Chinese cabbage, Pak-choi	15
strawberry	20
lentils (for applications up to 875 mL/ha), canola, flax	21
rutabaga (post-plant drench treatment)	28
rutabaga (pre-plant or seedling treatments)	30
broccoli, Brussels sprouts, cabbage, cauliflower	32
green pepper	40
sunflower	42
garlic	50
cucumber, lentils (for application greater than 875 mL/ha), barley, wheat, oats, bulb onion, carrot	60
celery, sweet and field corn (seedling treatment only)	70
Sugar beet	90

Restricted Entry Intervals

The worker restricted entry level (REI) is 24 hours for all crops except cauliflower (10 days) and filberts (2 days).

TANK-MIX COMBINATIONS WITH HERBICIDES

Lorsban 4E can be tank mixed with the herbicides listed for wheat, oats and barley. The mixture will control insect pests as well as broadleaved or grassy weeds as recommended on the labels of the products used. **Read carefully and follow all use directions and use precautions on both the Lorsban 4E label and the label of the herbicide to be used for tank mixing. Failure to follow the rates of use and timing of application as recommended for each product will result in unsatisfactory control of the insect or weed target pest.**

When tank mixing Lorsban 4E with the following herbicides, always add the herbicide to the spray tank and then add the Lorsban 4E:

Avenge 200-C Wild Oat Herbicide

Banvel plus 2,4-D Amine

Buctril M

Glean Herbicide Dry Flowable

MCPA Ester

MCPA Amine

Tordon™ 202C Liquid Herbicide

2,4-D Amine

2,4-D Ester

NOTE: If Lorsban 4E is added first, it may settle out and cause plugging of lines or nozzles.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the use(s) described below were developed by persons other than Dow AgroSciences Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Dow AgroSciences Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Dow AgroSciences Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described below.

DIRECTIONS FOR USE

FILBERT	Do not apply more than three times per season. Do not apply within 14 days of harvest. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 4 days after application to conduct scouting activities.
Filbert aphid	Apply 4.2 – 4.8 litres of product in 100 L/ha. Apply as a foliar spray with ground application only using an airblast sprayer. Direct nozzles of air blast sprayer into the orchard when spraying border rows.
ASIAN RADISH (LO BOK, DAIKON)	Do not apply more than 3 times per season. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply within 32 days of harvest. Do not enter treated fields until 1 day after application.
Cabbage maggot	Apply 210 millilitres in 1000 L of water per 1000 m row. Apply as a drench over seeded rows at 7, 20 and 35 days after seeding.
RADISH	Do not apply more than once per season. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply within 21 days of harvest. Do not enter treated fields until 1 day after application.

Cabbage maggot	Apply 85 millilitres of product in 380 L of water per 1000 m row. Apply as a drench with seed at planting time.
CHINESE BROCCOLI	Do not apply more than once per season. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply within 21 days of harvest. Do not enter treated fields until 1 day after application.
Cabbage maggot	Apply 150 millilitres of product in 800 L/1000 m row. Apply once per season banded over the row 5–7 days after seeding.
GREEN ONION	Do not harvest within 30 days of treatment. Use a maximum of one application per year. Ground application only (DO NOT APPLY BY AIRCRAFT).
Onion maggot	Apply as a drench banded over the row. Apply 150 millilitres of product per 1000 metres of row using 800 litres of water per hectare (equivalent to 3.9 – 4.9 L of product/ha at row spacings of 30-38 cm). Lorsban 4E should be applied at the time of set planting or 7 to 10 days after seeding.

Refer to the main Lorsban 4E label for additional details and instructions, including preharvest intervals, before using.

READ THE ROTATIONAL CROPPING RESTRICTIONS ON THE FULL LABEL BEFORE USING THIS PRODUCT.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FOREST: LODGEPOLE PINE	Ground application only (DO NOT APPLY BY AIRCRAFT). For use in Western Canada only.
Mountain pine beetle	<p>Restricted Use</p> <p>NATURE OF RESTRICTION: This product is to be used only in the manner authorized. Contact local pesticide regulatory authorities about appropriate use permits that may be required.</p> <p>To be applied only under the direct supervision of commercial applicator responsible for insect control programs.</p> <p>For ground use only to control small infestations of mountain pine beetle in lodgepole pine forest stands. Monitor stands from mid-June to mid-July to determine the trees that are infested. Treat infested trees within a few weeks of expected beetle emergence, usually early July, to kill the adult beetles. Avoid spraying when conditions favour drift from spray area.</p> <p>Prepare a spray solution of 41.66 litres of product/1000 L of water to make a spray containing 2% active ingredient by weight. Apply at a rate of 1 L spray /m² of bark prior to adult beetle emergence. Treat boles from ground level up to a height of at least 3 m or until a bole diameter of 12.5 cm is reached.</p>

PESTS OF ORNAMENTALS (COMMERCIAL PRODUCTION ONLY) - GREENHOUSES AND NURSERIES ONLY

Use Lorsban 4E to treat flowers, shrubs, vines, shade and flowering trees and evergreens found to be infested with the pests listed in the following table. Dilute Lorsban 4E with water according to directions given in the table and apply using suitable hand or power spray equipment in a manner to provide complete and uniform coverage. For best results apply a wetting spray to both upper and lower leaf surfaces and infested limb and trunk areas. Attempt to penetrate dense foliage but avoid overspraying to the point of excessive run-off. Treat when pests appear and repeat at 7 to 10 day intervals, if needed.

A re-entry interval of two days for workers conducting crop contact activities is required for use on Greenhouse Ornamentals.

NOTE: Environmental factors have significant effects on phytotoxic expression. Lorsban 4E has been tested on numerous ornamental plants without causing serious phytotoxicity. However, do not use on azaleas, camellias, poinsettias, rose bushes or variegated ivy because of possible injury to these plants.

Pest	Amount of Product per 1000 L	Specific Host Plants
spittlebugs	88-150 mL	various ornamental plants
mealybugs	200 mL	various ornamental plants
aphids	375 mL	beech, birch, elm, hickory, linden, maple, oak, pine, flowering cherry, flowering plum, spruce, tulip tree, viburnum, willow, spirea, nasturtium
clover mite, European red mite, honey locust mite, red oak mite, spruce spider mite, two-spotted spider mite	375-500 mL	Arborvitae, juniper
borers such as ash and lilac borers	500 mL	locust, birch, mountain ash, willow, lilac
Eastern and forest tent caterpillars	500 mL	ash, birch
European pine sawfly, redheaded pine sawfly	500 mL	conifers, mountain ash
grasshoppers	500 mL	various ornamental plants
thrips	500 mL	various ornamental plants
whiteflies	500 mL	various ornamental plants
leafhoppers such as potato and six-spotted leafhoppers	1 L	various ornamental plants
scale insects such as lecanium, cottony maple, San Jose, oystershell	2 L	various ornamental plants

500 mL is equivalent to 240 g of chlorpyrifos per 1000 L

1 L is equivalent to 480 g of chlorpyrifos per 1000 L

2 L is equivalent to 960 g of chlorpyrifos per 1000 L

For Control of Japanese beetle (larvae)

Controls Japanese beetle (larvae) infesting soil in which outdoor ornamentals (including containerized nursery stock) are growing. Apply to the soil when grubs are young and actively feeding near the soil surface, usually during late July, August, September or as recommended by your local agricultural representative. Use at rates of 4.5 L/1000 L on various ornamental plants. Apply as a coarse, low pressure spray using suitable application equipment. Immediately after spraying irrigate the treated area with 1 to 2 cm of water to wash the insecticide into the underlying soil. Spraying may also take place in April and May.

For container grown stock: Submerge the entire root ball or container in a solution of 45 mL Lorsban 4E /10L water (4.5 L/1000 L) until all bubbling stops. Remove plants from solution and allow to drain.

PESTS OF TURF (SOD FARMS ONLY)

Use Lorsban 4E to control the pests listed in the following table by application at the recommended dosages and in accordance with the directions given below. Dilute Lorsban 4E in enough water to obtain complete and uniform coverage of pest infested areas and apply as a coarse, low pressure spray using suitable application equipment. Do not use on ornamental plants including flowers, shrubs, vines, shade and flowering trees and evergreens.

Pest	Amount of Product per 100 m ²	Specific Directions
ants, chinch bugs, cutworms	22.5 mL	Spray when pests first appear, repeat when needed.
crane fly larvae (leatherjackets)	20-25 mL	Apply as drenching spray in water in late fall after the flight of adult crane flies has ceased for the year.
sod webworms	22.5 mL	For sod webworms delay watering or mowing the treated area for 12-24 hours after treatment.
turfgrass (hyperodes spp) weevil (annual and bluegrass weevil)	22.5 mL	Spray suspected problem areas in mid-April and again in mid-May, or as recommended by your local agricultural representative.

22.5 mL/100 m² = 112.5 mL/500 m² = 225 mL/1000 m² or 2.25 L/ha

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Lorsban 4E contains a Group 1B¹ insecticide. Any insect population may contain individuals naturally resistant to Lorsban 4E and other Group 1B¹ insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of Lorsban 4E or other Group 1B¹ insecticides with different groups that control the same pests in a field.
- Use tank mixtures with insecticides from a different group when such use is permitted.
- Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.dowagro.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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081911

Label Code: CN-14879-010-E-rev

Replaces: CN-14879-009-E

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

LORSBAN* -4E INSECTICIDE (NAF-163)

Effective Date: 2-Nov-06
Product Code: 47602
MSDS: 005688

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Lorsban* -4E Insecticide (NAF-163)

COMPANY IDENTIFICATION:

Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Red liquid with solvent-type odor. May cause eye irritation or corneal injury. Prolonged exposure may cause skin irritation. Cholinesterase inhibitor. Toxic to aquatic organisms, birds, and fish. Store at temperatures below 122°F (50°C)

EMERGENCY PHONE NUMBER: 800-992-5994

3. COMPOSITION/INFORMATION ON INGREDIENTS:

COMPONENT	CAS NUMBER	W/W%
Chlorpyrifos	2921-88-2	44.9
1,2,4-Trimethylbenzene	95-63-6	15.8
Xylene	1330-20-7	1.5
Cumene	98-82-8	0.9
Balance		36.9

4. FIRST AID:

EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, and then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

SKIN: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

INGESTION: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

INHALATION: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, and then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc.). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

NOTE TO PHYSICIAN: Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Maintain adequate ventilation and oxygenation of the patient. Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. . If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Attempt seizure control with diazepam 5-10 mg (adults) intravenous over 2-3 minutes. Repeat every 5-10 minutes as needed. Monitor for hypotension, respiratory depression, and need for intubation. Consider second agent if seizures persist after 30 mg. If seizures persist or recur administer Phenobarbital 600-1200 mg (adults) intravenous diluted in 60 mL 0.9% saline given at 25-50 mg/minute. Evaluate for hypoxia, dysrhythmia, electrolyte disturbance, hypoglycemia (treat adults with dextrose 100 mg intravenous). Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have safety data sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 106°F (41°C)

METHOD USED: TCC

FLAMMABLE LIMITS

LFL: 1%

UFL: 6% (xylene range aromatic solvent)

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

LORSBAN* -4E INSECTICIDE (NAF-163)

Effective Date: 2-Nov-06
Product Code: 47602
MSDS: 005688

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to sulfur oxides, phosphorus compounds, nitrogen oxides, hydrogen chloride, carbon monoxide, and/or carbon dioxide.

OTHER FLAMMABILITY INFORMATION: Dense smoke is produced when product burns. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Vapors are heavier than air and may travel a long distance and accumulate in low-lying areas. Ignition and/or flash back may occur. Container may rupture from gas generation in a fire situation.

EXTINGUISHING MEDIA: Water fog or fine spray, carbon dioxide, dry chemical or foam. Alcohol resistant foams (ATC type) are preferred if available. General-purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively.

MEDIA TO BE AVOIDED: Do not use direct water stream.

FIRE-FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Eliminate ignition sources. Consider feasibility of a controlled burn to minimize environmental damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Fight fire from protected location or safe distance. Consider use of unmanned hose holder or monitor nozzles. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Immediately withdraw all personnel from area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard. Contain firewater run-off if possible. Fire water run-off, if not contained may cause environmental damage. Review the "Accidental Release Measures" and "Ecological Information" sections of this MSDS.

PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Where positive-pressure self-contained breathing apparatus (SCPA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). If protective equipment isn't available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Absorb spills with an absorbent material such as HAZORB, ZORBALL, or dirt. Thoroughly wash body areas, which come into contact with this product. Contain spill to keep out of sewers. Report large spills to Dow AgroSciences at 800-992-5994. Vapor explosion hazard, keep out of sewers. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Pump with explosion-proof equipment. If available, use foam to smother or suppress.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Do not swallow. Do not get in eyes, on skin, or on clothing. Avoid breathing spray mist and vapors. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion proof equipment may be necessary, depending upon the type of operation. No smoking, open flames or sources of ignition in handling and storage area. Minimize sources of ignition, such as static buildup, heat, spark, or flame. Store in original container with the lid tightly closed. Store at temperatures below 122°F (50°C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where a potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINE(S):

Chlorpyrifos: ACGIH TLV is 0.1 mg/M³, (I,V); A4, Skin BEI.
Xylene range aromatic solvent: none established. Supplier recommends a guideline of 50 ppm for the total product which is a mixture of petroleum hydrocarbons.
1,2,4-Trimethylbenzene: ACGIH TLV is 25 ppm.

MATERIAL SAFETY DATA SHEET



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Dow AgroSciences LLC
Indianapolis, IN 46268

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Cumene (isopropyl benzene): ACGIH TLV and OSHA PEL are 50 ppm. OSHA classifies as Skin.

Xylene: ACGIH TLV is 100 ppm TWA, 150 ppm STEL, A4. OSHA PEL is 100 ppm TWA

A 'skin' notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

A BEI notation following the exposure guideline refers to a guidance value for assessing biological monitoring results as an indicator of the uptake of a substance from all routes of exposures.

A SEN notation following the exposure guideline refers to the potential to produce sensitization, as confirmed by human or animal data.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Use only with adequate ventilation.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be greatly exceeded, use an approved positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved positive-pressure supplied-air respirator. The following should be effective types of air-purifying respirators: organic vapor cartridge with a particulate pre-filter.

SKIN PROTECTION: Wear clean, body-covering clothing.

HAND PROTECTION: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Polyethylene, Viton, Polyvinyl chloride (PVC or vinyl), Styrene/butadiene rubber, Polyvinyl alcohol (PVA), Ethyl vinyl alcohol laminate (Eval). Examples of acceptable glove barrier materials include: Butyl rubber Neoprene, Chlorinated polyethylene, Natural rubber (latex), Nitrile/butadiene rubber (Nitrile or NBR). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

EYE PROTECTION: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: 290°F (143°C)(solvent)

VAPOR PRESSURE: <10 mmHg @ 25°C

VAPOR DENSITY: Not determined

SOLUBILITY IN WATER: Emulsifiable

SPECIFIC GRAVITY: 1.079

APPEARANCE: Red liquid

ODOR: Solvent-type odor

10. STABILITY AND REACTIVITY:

STABILITY: Unstable at elevated temperatures.

CONDITIONS TO AVOID: Avoid temperatures >122°F (>50°C). Chlorpyrifos decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

HAZARDOUS DECOMPOSITION: Hazardous decomposition products depend upon temperature, air supply and the presence of other materials. Hazardous decomposition products may include and are not limited to hydrogen chloride, organic sulfides and sulfur dioxide. Toxic gases are released during decomposition

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INCOMPATIBLE MATERIALS: Avoid contact with oxidizing materials and bases.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

EYE: May cause moderate eye irritation. May cause moderate corneal injury. Vapors may cause eye irritation experienced as mild discomfort and redness.

SKIN: Prolonged contact may cause moderate skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts. A test in guinea pigs indicated that this product may have weak skin sensitization potential. However, experience in the manufacture and use of this product has not provided evidence for skin sensitizing properties. The LD₅₀ for a similar material for skin absorption in rabbits rats was >5,000 mg/kg.

INGESTION: Moderate toxicity if swallowed. The oral LD₅₀ for a similar material for rats was 776 mg/kg (males) and 300 mg/kg (females). Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury, even death. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

INHALATION: Excessive exposure may produce organophosphate-type cholinesterase inhibition. Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure to solvent may cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. The aerosol LC₅₀ for a similar material for rats is 2.7 mg/L for 4 hours.

SYSTEMIC (OTHER TARGET ORGAN EFFECTS):

Excessive exposure may produce organophosphate-type cholinesterase inhibition. Signs and symptoms of excessive exposure to chlorpyrifos may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions. Chlorpyrifos, in animals, effects have been reported on the following organs: adrenal gland. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. Solvent has been reported to cause liver, kidney, and blood effects at high exposure levels. Xylene is reported to have caused hearing loss in laboratory animals upon exposure to high concentrations; such effects have not been reported in humans. For cumene, in animals, effects have been reported on the following organ: eye (cataract).

CANCER INFORMATION: Chlorpyrifos did not cause cancer in laboratory animals. Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

TERATOLOGY (BIRTH DEFECTS): Chlorpyrifos did not cause birth defects in laboratory animals. Solvent was toxic to the fetus in laboratory animal tests, but only at doses that were toxic to the mothers. Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects. No malformations were induced at exposures less than those causing severe toxicity to the adult animals.

REPRODUCTIVE EFFECTS: Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals. For the solvent, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

MUTAGENICITY (EFFECTS ON GENETIC MATERIAL):

Results of in-vitro and animal genetic toxicity studies on the aromatic solvent have been negative. Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal mutagenic potential.

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12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING:

Based largely or completely on information for chlorpyrifos and components of the solvent.

Bioconcentration potential is moderate (BCF is between 100 and 3000 or Log Pow between 3 and 5).

DEGRADATION & PERSISTENCE:

Based largely or completely on information for chlorpyrifos.

The photolysis half-life in water is 3-4 weeks.

Tropospheric half-life is estimated to be 1.4 hours.

Degradation is expected in the soil environment within days to weeks.

Under aerobic soil conditions the half-life is generally 30-60 days.

Based largely or completely on information for components of the solvent.

Biodegradation under aerobic static laboratory conditions is high (BOD 20 or BOD28/ThOD is >40%).

ECOTOXICOLOGY:

Based largely or completely on information for chlorpyrifos.

Material is very highly toxic to aquatic organisms on an acute basis (LC_{50} or EC_{50} <0.1 mg/L in most sensitive species tested).

Material is highly toxic to birds on a dietary basis (LC_{50} between 50 and 500 ppm).

Material is moderately toxic to birds on an acute basis (LD_{50} is between 51 and 500 mg/kg).

Based largely or completely on information for the solvent.

Material is moderately toxic to aquatic organisms on an acute basis (LC_{50} or EC_{50} is between 1 and 10 mg/L in most sensitive species).

Material is practically non-toxic to birds on a dietary basis (LC_{50} is >5000 ppm).

Material is practically non-toxic to birds on an acute basis (LD_{50} is >2000 mg/kg).

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities.

This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION:

U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:

For non-bulk land and air shipments:

ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, (CHLORPYRIFOS, AROMATIC NAPHTHA)/6.1(3)/UN3017/PG III/RQ (CHLORPYRIFOS)

For non-bulk vessel shipments:

ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, (CHLORPYRIFOS, AROMATIC NAPHTHA)/6.1(3)/UN3017/PG III/RQ (CHLORPYRIFOS)/MARINE POLLUTANT

For bulk shipments:

ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, (CHLORPYRIFOS, AROMATIC NAPHTHA)/6.1(3)/UN3017/PG III/RQ (CHLORPYRIFOS, XYLENE)/MARINE POLLUTANT

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15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
1,2,4-Trimethylbenzene	000095-63-6	15.8%
Xylene	001330-20-7	1.5%

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard
A fire hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
Xylene	001330-20-7	NJ1 NJ2 NJ3 PA1 PA3
Chlorpyrifos	002921-88-2	NJ3 PA1 PA3
1,2,4-Trimethylbenzene	000095-63-6	NJ2 NJ3 PA1
Cumene	000098-82-8	NJ2 NJ3 PA1 PA3

NJ1=New Jersey Special Health Hazard Substance (present at greater than or equal to 0.1%).
NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%).
NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).
PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).
PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Category	Rating
Health	2
Flammability	2
Reactivity	1

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA, which may require reporting of releases:

Chemical Name	CAS Number	RQ	% in Product
Chlorpyrifos	002921-88-2	1	44.9%
Xylene	001330-20-7	100	1.5%
Cumene	000098-82-8	5000	0.9%

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16. OTHER INFORMATION:

MSDS STATUS: Revised Sections: 2, 3, 4, 8, 11, 12, 15
Reference: DR-0352-3817
Replaces MSDS Dated: 9/23/04
Document Code: D03-062-008
Replaces Document Code: D03-062-007

The Information Herein Is Given In Good Faith, But No
Warranty, Express or Implied, Is Made. Consult Dow
AgroSciences for Further Information.

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Lorsban™ 15G

Insecticide

GROUP	1B¹	INSECTICIDE
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- This product is not to be used in and around homes or other residential areas such as parks, school grounds, playing fields. It is not for use by homeowners or other uncertified users.
- Contains chlorpyrifos.
- To control certain pests in onions, field, seed and sweet corn, broccoli, Brussels sprouts, cabbage, cauliflower and rutabagas.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: chlorpyrifos 15%
granular

REGISTRATION NO. 16458 PEST CONTROL PRODUCTS ACT

CAUTION  **POISON**

WARNING - EYE IRRITANT
HARMFUL IF SWALLOWED

NET CONTENTS: 22.7 kg

Dow AgroSciences Canada Inc.
2400, 215 – 2nd Street S.W.
Calgary, Alberta
T2P 1M4
1-800-667-3852

PRECAUTIONS

WARNING - EYE IRRITANT

HARMFUL IF SWALLOWED

KEEP OUT OF REACH OF CHILDREN

Avoid contact with skin, eyes and clothing. Impervious gloves should be used with shirt sleeves worn outside the gloves to prevent granules from falling into the gloves when handling this product. Work with the wind at your back to avoid breathing dust or having chemical blow into the eyes. The use of an organic vapour type respirator and safety glasses is recommended when handling. Do not wear contaminated clothing. Gloves and respirator cartridges should be replaced frequently and clothing laundered daily. Wash thoroughly with soap and water after handling.

PRECAUTIONS FOR MIXERS/LOADERS

Mixers/loaders must wear:

- coveralls over a long-sleeved shirt and long pants
- chemical-resistant gloves
- chemical-resistant footwear and socks
- an air purifying respirator equipped with an -R or -P series filter
- chemical-resistant apron

PRECAUTIONS FOR APPLICATORS

Do not apply with high-pressure handwand equipment.

Applicators using ground application equipment with a closed cab must wear:

- a long-sleeved shirt and long pants
- chemical-resistant gloves when leaving cab for clean up and repair (gloves must be removed when re-entering the cab)
- socks and shoes

Applicators using ground application equipment with an open cab must wear:

- coveralls over a long-sleeved shirt and long pants
- chemical-resistant gloves
- socks and shoes

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

Chlorpyrifos is an organophosphate that is a cholinesterase inhibitor. Typical symptoms of overexposure to cholinesterase inhibitors include headache, nausea, dizziness, sweating, salivation, runny nose and eyes. This may progress to muscle twitching, weakness, tremors, incoordination, vomiting, abdominal cramps and diarrhea in more serious poisonings. A life-threatening poisoning is signified by loss of consciousness, incontinence, convulsions and respiratory depression with a secondary cardiovascular component. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate degree of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as pralidoxime chloride, may be therapeutic if used early; however, use only in conjunction with atropine. In cases of severe acute poisoning, use antidotes immediately after establishing an open airway and respiration. With oral exposure, the decision of whether to induce vomiting or not should be made by an attending physician.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water or wetlands. This pesticide is toxic to birds and wildlife and extremely toxic to fish and aquatic organisms. Do not apply when weather conditions favour drift from treated areas. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent aquatic sites. Cover or incorporate granules that are spilled during loading or are visible on soil surface in turn areas.

- TOXIC to birds. Any spilled or exposed granules must be incorporated into the soil or otherwise cleaned-up from the soil surface.
- TOXIC to wild mammals. Any spilled or exposed granules must be incorporated into the soil or otherwise cleaned-up from the soil surface.
- TOXIC to bees exposed to direct treatment, drift, or residues on blooming plants. Do not use on flowering crops or weeds.
- TOXIC to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland
- DO NOT apply this product or allow it to drift to flowering crops or weeds if bees are visiting the treatment area. Applicators should inform local bee keepers prior to application if hives are in adjacent fields. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site.
- To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g., soils that are compacted or fine textured such as clay).
- Avoid application of this product when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.

STORAGE

Do not contaminate water, food or feed by storage or disposal.

DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL USE PRECAUTIONS

- DO NOT APPLY BY AIR
- **DO NOT** apply this product directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries habitats or marine habitats.
- **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- A plantback interval of 30 days must be observed between application and planting of rotational crops, with the exception of radish, Chinese cabbage, pak choi and cole crops for which no plantback restriction is required.

DIRECTIONS FOR USE

Apply Lorsban 15G Insecticide to control corn rootworm and aid in the suppression of cutworm in corn and also to control onion maggot larvae in onions and cabbage maggot in broccoli, Brussels sprouts, cabbage, cauliflower and rutabagas. **Every effort should be made to completely incorporate granules. Granule deposits from spills and accumulation at row ends should be covered with soil.**

Field, Seed and Sweet Corn

CORN (FIELD, SWEET)	Do not apply more than 1 application per season. Do not apply within 70 days of harvest. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application.
Northern corn rootworm, western corn rootworm, cutworm (suppression)	ROW TREATMENT Apply 75 grams product per 100 m row. Incorporate the granules into the top 2.5 cm of soil by placing a 15–18 cm wide band over the row behind the planter shoe and ahead of the press wheels. When applied as directed for rootworm control, this product will provide some reduction of cutworm populations. However, under heavier infestations of cutworms, further insecticidal treatment with other formulations may be necessary.

Equivalent rates of Lorsban 15G Insecticide per hectare for various row spacing are given in the accompanying table.

Amount of Lorsban 15G Insecticide/ 100 m of Row	kg of Lorsban 15G Insecticide Required/ha For Various Row Spacing					
	102 cm	96.5 cm	91.5 cm	86.5 cm	81 cm	76 cm
75 g	7.4	7.8	8.2	8.7	9.2	9.8

GENERAL INSTRUCTIONS FOR EQUIPMENT CALIBRATION

CAUTION: The following table lists suggested initial gauge settings for application of Lorsban 15G Insecticide with one hopper opening per row. Be sure to check the actual application rate under your operating conditions.

1. Fill hopper.
2. Attach a plastic bag to tube opening.
3. Set your planter to the initial settings shown on the table.
4. Measure off 100 row metres and drive your planter the premeasured distance at your desired speed.
5. Each bag should contain 75 grams of granules depending on your desired rate.
NOTE: Grams WT of granules - 75 grams
 Approx. mL (volume) - 100 mL
6. If the result is over or under the desired rate, adjust the settings and repeat the calibration.

Lorsban 15G Insecticide - Calibration

Planter	Speed, kmph								
	3	4.5	6.5	8	10	11	13	14.5	16
	Application Rate, 75 g/100 row metres								
	Gauge Setting								
Gandy ¹	13.6	16.7	19.7	22.8	24.8	26.3	27.8	29.3	30.7
John Deere 7000 Max Emerge ¹	9	12	16	19	22	25	27	30	31
John Deere 721 Flexi-Planter ²	1/22	1/25	1/28	2/4	2/7	2/11	2/16	2/22	2/29
Allis Chalmers 70 Series ³	8	8	8	8	8	8	8	8	8
Allis Chalmers 78 & 79 Series ⁴	1/2.9	1/5.1	1/7.3	2/0.5	2/2.8	2/6.0	2/9.0	3/2.3	3/5.5
Noble ¹ (new)	6	8	10	13	14	15	17	18	20
Noble ¹ (old)	7	10	13	16	19	22	25	27	30
International Harvester ⁴	1/2.9	1/5.1	1/7.3	2/0.5	1/2.8	2/6.0	2/9.0	3/2.3	3/5.5

¹Gauge setting.

²Gauge setting with range 1 & 2 - number shown is range/notch.

³Gauge setting is constant regardless of speed.

⁴Gauge setting shown with stem gates & dial settings - number shown is gate/dial.

Onions

To control larvae of the onion maggot, apply Lorsban 15G Insecticide as an in-furrow at-plant treatment. Refer to the following table for the required amount of Lorsban 15G Insecticide.

ONION (bulb, pickling)	Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply more than once per season. Do not enter treated fields until 1 day after application. Do not apply to bunching onions. [See also below.] Do not apply within 109 days of harvest for bulb onions, or 97 days of harvest for pickling onions.
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Spacing of seed furrow width (cm)	2.5-5	7.5	10-15
gm/100 metres	32	48	64
kg of product/ha	7.9	11.8	15.7
kg a.i./ha	1.2	1.8	2.4

Calculate the amount of Lorsban 15G Insecticide per 100 metres of row required as shown in the following examples: For dry onions using a precision seeder equipped with a double line coulters; seed furrow width is 2.5 cm per line x 2 lines; therefore apply 32 gm of Lorsban 15G Insecticide per 100 metres of double row.

Do not make more than one application per season.

For pickling onions use a Planet Jr. seeder equipped with a 10 cm shoe; seed furrow width is 10 cm; therefore apply 64 gm of Lorsban 15G Insecticide per 100 metres of row. Use no more than 16 kg of Lorsban 15G Insecticide per hectare.

Broccoli, Brussels sprouts, Cabbage, Cauliflower and Rutabagas

PAK CHOI, BROCCOLI, BRUSSELS SPROUT, CABBAGE, CAULIFLOWER, CHINESE CABBAGE	Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application for pak choi and Chinese cabbages. Do not enter treated fields until 10 days after application for cauliflower, 1 day after application for all other crops. [See also below.] Do not apply more than once per season.														
Cabbage maggot (BROCCOLI, BRUSSELS SPROUT, CABBAGE, CAULIFLOWER, RUTABAGA, only)	Apply 0.6-1.0 kg product per 1000 m of row. Apply as an in-furrow, at-plant treatment. Application rates for different row spacings are as follows: <table border="0"> <thead> <tr> <th style="text-align: left;">Row Spacing</th> <th style="text-align: left;">kg product per hectare</th> </tr> </thead> <tbody> <tr> <td>30 cm</td> <td>20-33.3</td> </tr> <tr> <td>60 cm</td> <td>10-16.7</td> </tr> <tr> <td>75 cm</td> <td>8.0-13.3</td> </tr> <tr> <td>80 cm</td> <td>7.5-12.5</td> </tr> <tr> <td>90 cm</td> <td>6.7-11.1</td> </tr> <tr> <td>105 cm</td> <td>5.7-9.5</td> </tr> </tbody> </table>	Row Spacing	kg product per hectare	30 cm	20-33.3	60 cm	10-16.7	75 cm	8.0-13.3	80 cm	7.5-12.5	90 cm	6.7-11.1	105 cm	5.7-9.5
Row Spacing	kg product per hectare														
30 cm	20-33.3														
60 cm	10-16.7														
75 cm	8.0-13.3														
80 cm	7.5-12.5														
90 cm	6.7-11.1														
105 cm	5.7-9.5														
RUTABAGA	Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application. Do not apply within 30 days of harvest. [See also below.] Do not apply more than once per season.														
Cabbage maggot	Apply 0.6-1.0 kg product per 1000 m of row. Apply as an in-furrow, at-plant treatment. Application rates for different row spacings are as follows: <table border="0"> <thead> <tr> <th style="text-align: left;">Row Spacing</th> <th style="text-align: left;">kg product per hectare</th> </tr> </thead> <tbody> <tr> <td>30 cm</td> <td>20-33.3</td> </tr> <tr> <td>60 cm</td> <td>10-16.7</td> </tr> <tr> <td>75 cm</td> <td>8.0-13.3</td> </tr> <tr> <td>80 cm</td> <td>7.5-12.5</td> </tr> <tr> <td>90 cm</td> <td>6.7-11.1</td> </tr> <tr> <td>105 cm</td> <td>5.7-9.5</td> </tr> </tbody> </table>	Row Spacing	kg product per hectare	30 cm	20-33.3	60 cm	10-16.7	75 cm	8.0-13.3	80 cm	7.5-12.5	90 cm	6.7-11.1	105 cm	5.7-9.5
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105 cm	5.7-9.5														

NOTE TO BUYER/USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the use(s) described below were developed by persons other than Dow AgroSciences Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Dow AgroSciences Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Dow AgroSciences Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described below.

DIRECTIONS FOR USE

SHALLOTS (Dry Bulb)

For the control of onion maggot larvae on shallots (dry bulb), apply Lorsban 15G as an in-furrow at-plant ground application as indicated in table following:

Spacing of seed furrow width (cm)	2.5-5	7.5	10-15
gm/100 metres	32	48	64
kg of product/ha	7.9	11.8	15.7
kg a.i./ha	1.2	1.8	2.4

Ground application only (DO NOT APPLY BY AIRCRAFT). Do not make more than one application per season. DO NOT apply more than 11 kg a.i./day (73.5 kg product/day). Do not enter treated fields until 1 day after application. Do not apply within 109 days of harvest.

Refer to the main Lorsban 15G Insecticide product label for additional details

Preharvest Intervals

Crop	Interval (Days) Between Last Application and Harvest
rutabagas	30
broccoli, Brussels sprouts, cabbage, cauliflower, field, seed and sweet corn	32
pickling onions	70
dry onions, shallots (dry bulb)	97

Restricted Entry Intervals

The worker restricted entry level (REI) is 24 hours for all crops except cauliflower which is 10 days.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Lorsban 15G Insecticide contains a Group 1B¹ insecticide. Any insect population may contain individuals naturally resistant to Lorsban 15G Insecticide and other 1B¹ insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of Lorsban 15G Insecticide or other Group 1B¹ insecticides with different groups that control the same pests in a field.
- Use tank mixtures with insecticides from a different group when such use is permitted.
- Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.corteva.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in any way that is

inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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091613

Label Code: CN-16458-010-E
Replaces: CN-16458-009-E

Product Name: Lorsban* 15G Insecticide**Issue Date:** 2014.01.21

Dow AgroSciences Canada Inc. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name

Lorsban* 15G Insecticide

COMPANY IDENTIFICATION

Dow AgroSciences Canada Inc.
A Subsidiary of The Dow Chemical Company
Suite 2100, 450 1st Street SW
Calgary, AB T2P 5H1
Canada

For MSDS updates and Product Information: 800-667-3852**Prepared By:** Prepared for use in Canada by EH&S, Hazard Communications.
Revision 2014.01.21**Customer Information Number:** 800-667-3852
solutions@dow.com**EMERGENCY TELEPHONE NUMBER****24-Hour Emergency Contact:** 613-996-6666**Local Emergency Contact:** 613-996-6666

2. Hazards Identification

Emergency Overview**Color:** Tan**Physical State:** Granules**Odor:** Obnoxious**Hazards of product:****CAUTION!** May cause eye irritation.

Potential Health Effects

Eye Contact: May cause moderate eye irritation. Corneal injury is unlikely.

Skin Contact: Brief contact is essentially nonirritating to skin.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: No adverse effects are anticipated from single exposure to dust.

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Effects of Repeated Exposure: For the active ingredient(s): Chlorpyrifos. Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure to active ingredient may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions. In animals, effects have been reported on the following organs: Adrenal gland. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. For the major component(s): Repeated excessive inhalation exposures to dusts may cause respiratory effects. For the minor component(s) In humans, effects have been reported on the following organs: Kidney.

Birth Defects/Developmental Effects: For the active ingredient(s): Chlorpyrifos. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive Effects: For the active ingredient(s): Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals. For the minor component(s): Gamma-butyrolactone. Based on testicular effects in laboratory animal studies, excessive exposure may interfere with reproduction.

3. Composition/information on ingredients

Component	CAS #	Amount W/W
Chlorpyrifos	2921-88-2	15.0 %
gamma-Butyrolactone	96-48-0	2.5 %
Balance	Not available	82.5 %

Amounts are presented as percentages by weight.

4. First-aid measures

Description of first aid measures

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin Contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye Contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

Ingestion: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of immediate medical attention and special treatment needed

Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Atropine, only by injection,

is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire Fighting Measures

Suitable extinguishing media

Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers.

Special hazards arising from the substance or mixture

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Sulfur oxides. Phosphorous compounds. Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Do not permit dust to accumulate. When suspended in air dust can pose an explosion hazard. Minimize ignition sources. If dust layers are exposed to elevated temperatures, spontaneous combustion may occur. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Soak thoroughly with water to cool and prevent re-ignition. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

See Section 9 for related Physical Properties

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Handling

General Handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing dust or mist. Wash thoroughly after handling. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Other Precautions: No smoking, open flames or sources of ignition in handling and storage area. Good housekeeping and controlling of dusts are necessary for safe handling of product.

Storage

Store in a dry place. Store in original container. Do not store near food, foodstuffs, drugs or potable water supplies.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Chlorpyrifos	CAD AB OEL	TWA	0.1 mg/m ³
	CAD BC OEL	TWA Vapor and aerosol, inhalable.	0.1 mg/m ³ SKIN
	ACGIH	TWA Inhalable fraction and vapor.	0.1 mg/m ³ SKIN, BEI
	CAD ON OEL	TWAEV Vapor and aerosol, inhalable fraction.	0.1 mg/m ³ SKIN
	OEL (QUE)	TWA	0.2 mg/m ³ SKIN

Consult local authorities for recommended exposure limits.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

A BEI notation following the exposure guideline refers to a guidance value for assessing biological monitoring results as an indicator of the uptake of a substance from all routes of exposures.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

A "skin" notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

Personal Protection

Eye/Face Protection: Use chemical goggles.

Skin Protection: Wear clean, body-covering clothing.

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, in dusty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Appearance

Physical State	Granules
Color	Tan
Odor	Obnoxious
Odor Threshold	No test data available
pH	4.67 (@ 9.1 %) <i>pH Electrode</i> (aqueous suspension)
Melting Point	No test data available
Freezing Point	Not applicable
Boiling Point (760 mmHg)	Not applicable
Flash Point - Closed Cup	Not applicable
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	No
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Vapor Pressure	Not applicable
Vapor Density (air = 1)	Not applicable
Specific Gravity (H ₂ O = 1)	Not applicable
Solubility in water (by weight)	Insoluble
Autoignition Temperature	No test data available
Decomposition Temperature	No test data available
Dynamic Viscosity	Not applicable
Kinematic Viscosity	Not applicable
Liquid Density	Not applicable
Bulk Density	0.721 g/cm ³ @ 22.8 °C <i>Loose Volumetric</i>

10. Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Unstable at elevated temperatures.

Possibility of hazardous reactions

Polymerization will not occur.

Conditions to Avoid: Avoid temperatures above 70°C (158°F) Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible Materials: Avoid contact with: Bases. Oxidizers.

Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrogen cyanide. Organic sulfides. Sulfur dioxide.

11. Toxicological Information**Acute Toxicity****Ingestion**

LD50, rat, female 1,288 mg/kg

LD50, rat, male 2,250 mg/kg

Dermal

LD50, rabbit, male and female > 5,000 mg/kg

Inhalation

LC50, 4 h, Aerosol, rat, male and female > 2.06 mg/l

Eye damage/eye irritation

May cause moderate eye irritation. Corneal injury is unlikely.

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

Sensitization**Skin**

Did not cause allergic skin reactions when tested in guinea pigs.

Repeated Dose Toxicity

For the active ingredient(s): Chlorpyrifos. Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure to active ingredient may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions. In animals, effects have been reported on the following organs: Adrenal gland. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use. For the major component(s): Repeated excessive inhalation exposures to dusts may cause respiratory effects. For the minor component(s) In humans, effects have been reported on the following organs: Kidney.

Chronic Toxicity and Carcinogenicity

For the active ingredient(s): Chlorpyrifos. For the minor component(s): Gamma-butyrolactone. Did not cause cancer in laboratory animals.

Developmental Toxicity

For the active ingredient(s): Chlorpyrifos. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For the active ingredient(s): Chlorpyrifos. Did not cause birth defects in laboratory animals.

Reproductive Toxicity

For the active ingredient(s): Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals. For the minor component(s): Gamma-butyrolactone. Based on testicular effects in laboratory animal studies, excessive exposure may interfere with reproduction.

Genetic Toxicology

For the minor component(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. For the active ingredient(s): Based on a majority of negative data and some equivocal or marginally positive results, active ingredient is considered to have minimal genetic toxicity potential.

12. Ecological Information

Toxicity

Data for Component: **Chlorpyrifos**

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species). Material is highly toxic to birds on a dietary basis (LC50 between 50 and 500 ppm).

Fish Acute & Prolonged Toxicity

LC50, *Oncorhynchus mykiss* (rainbow trout), 96 h: 0.003 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, *Daphnia magna* (Water flea), 48 h: 0.00068 mg/l

Aquatic Plant Toxicity

EC50, *Skeletonema costatum*, Growth inhibition (cell density reduction), 96 h: 0.255 - 0.328 mg/l

Toxicity to Micro-organisms

EC50; activated sludge: > 100 mg/l

Fish Chronic Toxicity Value (ChV)

Pimephales promelas (fathead minnow), 216 d, NOEC:0.000568 mg/l

Aquatic Invertebrates Chronic Toxicity Value

Daphnia magna (Water flea), number of offspring, NOEC: 0.000056 mg/l

Toxicity to Above Ground Organisms

oral LD50, Other: 122 mg/kg bodyweight.

dietary LC50, *Colinus virginianus* (Bobwhite quail): 423 mg/kg diet.

oral LD50, *Apis mellifera* (bees): 0.36 micrograms/bee

contact LD50, *Apis mellifera* (bees): 0.070 micrograms/bee

Toxicity to Soil Dwelling Organisms

LC50, *Eisenia fetida* (earthworms), 14 d: 129 mg/kg

Data for Component: **gamma-Butyrolactone**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, *Lepomis macrochirus* (Bluegill sunfish), 96 h: 56 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, *Daphnia magna* (Water flea), 48 h, immobilization: > 500 mg/l

Aquatic Plant Toxicity

EbC50, alga *Scenedesmus* sp., biomass growth inhibition, 96 h: 79 mg/l

Persistence and Degradability

Data for Component: **Chlorpyrifos**

Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%).

Stability in Water (1/2-life):

72 d

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
22 %	28 d	OECD 301D Test	fail

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
9.16678E-11 cm ³ /s	1.4 h	Estimated.

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
0.000 %			

Data for Component: **gamma-Butyrolactone**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
77 %	14 d	OECD 301C Test	Not applicable

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
2.89E-12 cm ³ /s	44.5 h	Estimated.

Theoretical Oxygen Demand: 1.67 mg/mg

Bioaccumulative potentialData for Component: **Chlorpyrifos**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient, n-octanol/water (log Pow): 4.7 Estimated.

Data for Component: **gamma-Butyrolactone**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): -0.64 Measured

Mobility in soilData for Component: **Chlorpyrifos**

Mobility in soil: Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient, soil organic carbon/water (Koc): 8,151
Henry's Law Constant (H): 6.6E-06 atm*m³/mole Measured

Data for Component: **gamma-Butyrolactone**

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient, soil organic carbon/water (Koc): 7.1 Estimated.

Henry's Law Constant (H): 4.35E-08 atm*m³/mole; 25 °C Estimated.

13. Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. Transport Information**TDG Small container**

TDG not required for road or rail per Sec. 1.45.1

TDG Large container

TDG not required for road or rail per Sec. 1.45.1

IMDG

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Technical Name: CHLORPYRIFOS

Hazard Class: 9 **ID Number:** UN3077 **Packing Group:** PG III

EMS Number: F-A,S-F

Marine pollutant: Yes

ICAO/IATA**Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.**Technical Name:** CHLORPYRIFOS**Hazard Class:** 9 **ID Number:** UN3077 **Packing Group:** PG III**Cargo Packing Instruction:** 956**Passenger Packing Instruction:** 956**15. Regulatory Information****CEPA - Domestic Substances List (DSL)**

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

Pest Control Products Act Registration number: 16458

National Fire Code of Canada

Not applicable

16. Other Information**Hazard Rating System**

NFPA	Health	Fire	Reactivity
	1	1	1

Recommended Uses and Restrictions**Identified uses**

Product use: End use insecticide product

Revision

Identification Number: 50127 / 1023 / Issue Date 2014.01.21 / Version: 3.1

DAS Code: XRM-5362

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
VOL/VOL	Volume/Volume

Dow AgroSciences Canada Inc. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



Dow AgroSciences

Lorsban™ 50W Insecticide

GROUP		INSECTICIDE
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- This product is not to be used in and around homes or other residential areas such as parks, school grounds, playing fields. It is not for use by homeowners or other uncertified users.
- Contains Chlorpyrifos

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

GUARANTEE: chlorpyrifos 50%
wetable powder

REGISTRATION NO. 20944 PEST CONTROL PRODUCTS ACT

DANGER  **POISON**

MAY BE FATAL IF SWALLOWED
HARMFUL IF ABSORBED THROUGH SKIN
MAY CAUSE EYE IRRITATION

NET CONTENTS: 10 kg (4 over-packs each containing 5 X 500 g water-soluble packets)

INDIVIDUAL SOLUBLE BAGS CANNOT BE SOLD SEPARATELY

Dow AgroSciences Canada Inc.
2400, 215 – 2nd Street S.W.
Calgary, Alberta
T2P 1M4
1-800-667-3852

®™ Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

PRECAUTIONS
MAY BE FATAL IF SWALLOWED
HARMFUL IF ABSORBED THROUGH SKIN
MAY CAUSE EYE IRRITATION
KEEP OUT OF REACH OF CHILDREN

Avoid contact with eyes, skin and clothing. Avoid breathing dust or spray mist. The use of a mask or respirator of a type approved by CSA or NIOSH for filtering spray mists and organic vapours, safety glasses, impervious gloves and long-sleeved clothing is recommended when loading the spray tank, handling the powder or if application equipment capable of producing a fine mist (e.g., airblast) is involved. Remove contaminated clothing and wash before reuse. Discard contaminated leather articles. Wash thoroughly with soap and water after handling and before eating or smoking. Do not re-enter treated areas until 24 hours after treatment. If early re-entry into treated areas is required, workers must wear long pants, chemical resistant gloves, work boots and a hat. Workers shall be given oral warning of the re-entry interval. Warning shall consist of:

1. The location and description of the treated area.
2. The time during which entry is restricted.
3. Instructions not to enter the treated area until the re-entry interval has expired.

PRECAUTIONS FOR MIXERS/LOADERS

Mixers/loaders must wear:

- a long-sleeved shirt and long pants
- socks and shoes
- chemical-resistant gloves
- chemical-resistant apron

Mixers and loaders using water-soluble packets must have immediately available for use in emergency (such as a broken package, spill or equipment breakdown) additional PPE. These PPE include coveralls and chemical-resistant footwear and a non-powered air purifying respirator equipped with an -R or -P series filter.

PRECAUTIONS FOR APPLICATORS

Do not apply with high-pressure handwand equipment.

Applicators using airblast equipment with a closed cab must wear:

- a long-sleeved shirt and long pants
- socks and shoes
- chemical-resistant gloves when leaving cab for clean-up and repair (gloves must be removed and left outside when re-entering the cab)

Applicators using airblast equipment with an open cab must wear:

- a long-sleeved shirt and long pants
- chemical-resistant coveralls and head protection
- socks and shoes
- chemical-resistant gloves
- an air purifying respirator with an -R or -P series filter

Applicators using ground application equipment with a closed cab must wear:

- a long-sleeved shirt and long pants
- chemical-resistant gloves when leaving cab for clean up and repair (gloves must be removed when re-entering the cab)
- socks and shoes

Applicators using ground application equipment with an open cab must wear:

- coveralls over a long-sleeved shirt and long pants
- chemical-resistant gloves
- socks and shoes

Applicators using handheld equipment must wear:

- a long-sleeved shirt and long pants
- chemical-resistant coveralls and head protection (if spray is upwardly directed)
- chemical-resistant footwear and socks
- chemical-resistant gloves
- an air purifying respirator with an -R or -P series filter

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

Chlorpyrifos is an organophosphate that is a cholinesterase inhibitor. Typical symptoms of overexposure to cholinesterase inhibitors include headache, nausea, dizziness, sweating, salivation, runny nose and eyes. This may progress to muscle twitching, weakness, tremors, incoordination, vomiting, abdominal cramps and diarrhea in more serious poisonings. A life-threatening poisoning is signified by loss of consciousness, incontinence, convulsions and respiratory depression with a secondary cardiovascular component. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate degree of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as pralidoxime chloride, may be therapeutic if used early; however, use only in conjunction with atropine. In cases of severe acute poisoning, use antidotes immediately after establishing an open airway and respiration. With oral exposure, the decision of whether to induce vomiting or not should be made by an attending physician.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

- TOXIC to birds. Any spilled or exposed granules must be incorporated into the soil or otherwise cleaned-up from the soil surface.
- TOXIC to wild mammals. Any spilled or exposed granules must be incorporated into the soil or otherwise cleaned-up from the soil surface.
- Highly TOXIC to bees exposed to direct treatment, drift, or residues on blooming plants. Do not use on flowering crops or weeds.
- TOXIC to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland
- DO NOT apply this product or allow it to drift to flowering crops or weeds if bees are visiting the treatment area. Applicators should inform local bee keepers prior to application if hives are in adjacent fields. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site.

Lorsban 50W Insecticide is also toxic to fish, crustaceans and other aquatic organisms. Do not apply directly to water. Drift and run-off from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Cover or incorporate spills. Keep out of lakes, streams, ponds and other waterways. Do not apply where run-off is likely to occur. Do not apply when weather conditions favour drift from treated areas. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g., soils that are compacted or fine textured such as clay).

Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.”

STORAGE

Do not contaminate water, food or feed by storage, by cleaning of equipment or disposal of wastes.

DISPOSAL

1. When all the water-soluble bags are used, make the empty outer package unsuitable for further use.
2. Dispose of the outer package in accordance with provincial requirements.
3. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Use Lorsban 50W Insecticide for the control of subterranean cutworms in green peppers, cucumbers, potatoes, Chinese cabbage, cabbage, broccoli, Brussels sprouts, cauliflower, rutabagas, onions (excluding bunching onions), celery, carrots, field and sweet corn, root maggots in tobacco and cabbage, strawberry cutworm (crown borer) in strawberries, potato flea beetle and tarnished plant bug in potatoes.

GENERAL USE PRECAUTIONS

- **DO NOT APPLY BY AIR**

DIRECTIONS FOR USE

Best results will be obtained when application of Lorsban 50W Insecticide is made during the afternoon or early evening. Apply as a broadcast application unless otherwise directed, over the crop in sufficient water to give thorough coverage of the soil surfaces. See preharvest interval table.

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty.

For airblast applications: Airblast applications are only permitted on peaches and nectarines. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

Buffer Zones

The buffer zones specified in the following tables are required between the point of direct application and the closest downwind edge of sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), estuarine habitats and marine habitats.

Field Sprayer Applications ¹

Rate of Application (g a.i./ha)	Buffer Zones (metres) Required for the Protection of Aquatic Habitats With Water Depths Of:		
	< 1 metre	1–3 metre	> 3 metre
Up to 576	50	40	30
Greater than 576, and less than or equal to 1152	55	45	35
Greater than 1152 and up to 2304	60	50	40

¹ Buffer zones are not required for treatments applied as a drench (i.e., drench applications for control of cabbage maggot, onion maggot and seedcorn maggot).

NOTE: Applicators may recalculate a site-specific buffer zone by combining information on current weather conditions and spray configuration for the following applications: all airblast applications, and for field and aerial applications which specify the following droplet size category wording on the product label: 'DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) [Fine or Medium or Coarse] classification.' To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site.

Airblast Applications

Rate of Application (g a.i./ha)	Buffer Zones (metres) Required for the Protection of Aquatic Habitats With Water Depths Of:		
	< 1 metre	1–3 metre	> 3 metre
Up to 1725	80	70	55

- **DO NOT** apply this product directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries habitats or marine habitats.
- **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- Application by aircraft is permitted only where specified in the directions for use.
- A plantback interval of 30 days must be observed between application and planting of rotational crops, with the exception of radish, Chinese cabbage, pak choi and cole crops for which no plantback restriction is required.

PRE-HARVEST INTERVAL: Time between last application and harvest.

Preharvest Intervals

Crop	Interval (Days) Between Last Application And Harvest
potato	7
strawberry	20
peaches, nectarines	21
rutabaga	30
cabbage, Chinese cabbage, cauliflower, broccoli, Brussel sprouts	32
green pepper	40
carrot, cucumber, onion	60
celery, corn (field and sweet)	70

Restricted Entry Intervals

The worker restricted entry level (REI) is 24 hours for all crops except cauliflower (10 days) and peaches and nectarines (4 days).

GENERAL INFORMATION FOR WATER-SOLUBLE PACKETS

The over-pack contains five 500 g water-soluble packets. Do not allow water-soluble packets to become wet prior to adding to the spray tank. Wear gloves when handling water-soluble packets. Do not handle water-soluble packets with wet gloves. Do not excessively handle water-soluble packets since this may cause breakage. Reseal over-pack to protect remaining water-soluble packets. Water-soluble packets may become brittle when stored below 0° C. Handle carefully to avoid breakage.

MIXING INSTRUCTIONS

Lorsban 50W Insecticide mixes readily with water to form a suspension. Do not apply Lorsban 50W Insecticide with liquid fertilizer or oil as a carrier. Fill the spray tank one-third full of water. Activate the agitation system. Add the required number of water-soluble packets to the spray tank. Complete filling the spray tank while the water-soluble packets dissolve and the Lorsban 50W Insecticide disperses. Before beginning to spray, make sure the Lorsban 50W Insecticide has dispersed and the water-soluble packets have dissolved. Maintain sufficient agitation during both mixing and application to ensure uniformity of the spray mixture. **Note:** Depending on the water temperature and degree of agitation, the water-soluble packets and Lorsban 50W Insecticide should completely be dispersed within approximately 5 minutes from the time they were added to the water. Lorsban 50W Insecticide contains a wetting agent. Do not use additional wetting agents, spreaders or stickers

DIRECTIONS FOR USE – SITES, PESTS, RATES AND DIRECTIONS

Sites and Pests	Rates and Directions
CORN (FIELD, SWEET)	Do not apply more than 1 application per season. Do not apply within 70 days of harvest. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application.
Black cutworm, darksided cutworm, redbacked cutworm	SEEDLING TREATMENT Apply 1.125-2.25 kg product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.
STRAWBERRY	Do not apply more than once per season. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply within 20 days of harvest. Do not enter treated fields until 1 day after application.
Strawberry cutworm (crown borer)	Apply 1.125 kg product in 2000 L/ha. Apply once as a foliar spray between June 1 and June 15. Large volumes of water are desirable to ensure full wetting of the crown area of the plants.
CELERY, CUCUMBER, PEPPER (GREEN)	Do not apply more than once per season. Do not apply within 70 days of harvest for celery, 40 days of harvest for pepper, or 60 days of harvest for cucumber. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application.
Black cutworm, darksided cutworm, redbacked cutworm	SEEDLING TREATMENT Apply 1.125-2.25 kg product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.
PAK CHOI, BROCCOLI, BRUSSELS SPROUT, CABBAGE, CAULIFLOWER, CHINESE CABBAGE	Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application for pak choi and Chinese cabbages. Do not enter treated fields until 10 days after application for cauliflower, 1 day after application for all other crops. [See also below.] Do not apply more than once per season. Do not apply within 32 days of harvest to cabbages
Cabbage maggot (CABBAGE only)	Apply 32.5 grams product/100 L. TRANSPLANT WATER TREATMENT: Apply 200 mL of solution with each plant. Do not use starter fertilizers with this product.
Black cutworm, darksided cutworm, redbacked cutworm (for BROCCOLI, BRUSSEL SPROUTS, CABBAGE, CAULIFLOWER, CHINESE CABBAGE)	SEEDLING TREATMENT Apply 1.125-2.25 kg product in 200-400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.

RUTABAGA	Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application. Do not apply within 30 days of harvest. [See also below.] Do not apply more than once per season.
Black cutworm, darksided cutworm, redbacked cutworm	SEEDLING TREATMENT Apply 1.125-2.25 kg product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.
CARROT	Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply more than once per season. Do not apply within 60 days of harvest. Do not enter treated fields until 1 day after application.
Black cutworm, darksided cutworm, redbacked cutworm	SEEDLING TREATMENT Apply 2.25-4.5 kg product in 200–400 L/ha. Apply as a broadcast spray at the 2- to 5-leaf stage. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry.
POTATO	Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply more than once per season. Do not apply within 7 days of harvest. Do not enter treated fields to conduct scouting, hand weeding or irrigation activities until 1 day after application.
Colorado potato beetle (larvae), potato flea beetle, tarnished plant bug	Apply 960 g product in 400–800 L/ha as a foliar spray.
Black cutworm, darksided cutworm, redbacked cutworm	SEEDLING TREATMENT Apply 1.125-2.25 kg product in 200–400 L/ha. Apply once as a broadcast spray when damage first appears.
ONION (bulb, pickling)	Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply more than once per season. Do not enter treated fields until 1 day after application. Do not apply to bunching onions. [See also below.] Do not apply within 60 days of harvest.
Black cutworm, darksided cutworm, redbacked cutworm	SEEDLING TREATMENT Apply 2.25-4.5 kg product in 200–400 L/ha. Apply as a broadcast spray at the 2- to 5-leaf stage. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry.
TOBACCO	Do not apply more than once per season. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application.
Seedcorn maggot	TRANSPLANT WATER TREATMENT Apply 137.5 g product/1000 L. Apply 200 mL of solution with each plant. Keep mixture well agitated. Do not use starter fertilizers with this product.

Peaches and Nectarines for Control of Oriental Fruit Moth

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the use(s) described below were developed by persons other than Dow AgroSciences Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Dow AgroSciences Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Dow AgroSciences Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described below.

PEACH, NECTARINE	Do not apply more than twice per season. Do not apply within 21 days of harvest. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 4 days after application to conduct scouting activities.
Oriental fruit moth	<p>Restricted use NATURE OF RESTRICTION: To be used only in the Oriental Fruit Moth Resistance Management Program in the Regional Municipality of Niagara and Essex County coordinated by the Ontario Ministry of Agriculture and Food and Rural Affairs (OMAFRA). OMAFRA will provide growers with information/training; application training and pest management program advice.</p> <p>RESISTANCE MANAGEMENT: Best results will be obtained when application of this insecticide is timed for egg hatch or first instar larvae of first generation Oriental fruit moth, usually around shuck to shuck-split. Growers should consult a local OMAFRA pest management specialist for exact timing of applications. Make 1–2 applications as needed. Apply as ground application only using an airblast sprayer. Direct nozzles of air blast sprayer into the targeted peach or nectarine tree orchard when spraying border rows.</p>

RESTRICTED USE: Best results will be obtained when application of Lorsban 50W Insecticide is timed for egg hatch or first instar larvae of first generation Oriental Fruit Moth usually around shuck to shuck-split. Growers should consult a local OMAFRA pest management specialist for exact timing of applications. Make 1-2 applications as needed. Apply as ground application only using an airblast sprayer. Apply 3.5 kg product in 1000-2000 L water per ha (amount of water will vary depending on tree size). One water-soluble packet contains 500 g of Lorsban 50W Insecticide; seven (7) water-soluble packets will treat 1 hectare. Direct nozzles of air blast sprayer into the targeted Peach/Nectarine tree orchard when spraying border rows. Do not apply when the prevailing wind direction will cause drift from treated areas into lakes, ponds or other waterways. The pre-harvest interval for peaches and nectarines is 21 days. Follow the re-entry instructions.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Lorsban 50W Insecticide contains a Group 1B¹ insecticide. Any insect population may contain individuals naturally resistant to Lorsban 50W Insecticide and other Group 1B¹ insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of Lorsban 50W Insecticide or other Group 1B¹ insecticides with different groups that control the same pests in a field.
- Use tank mixtures with insecticides from a different group when such use is permitted.
- Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.dowagro.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

052818

Label Code: CN-20944-008-E
Replaces: CN-20944-007-E

Specimen Label notes
Address update

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: LORSBAN™ 50W Insecticide

Issue Date: 12/04/2014

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: LORSBAN™ 50W Insecticide

Recommended use of the chemical and restrictions on use

Identified uses: End use insecticide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
2100 450 1ST STREET SW
CALGARY AB T2P 5H1
CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 12/04/2014

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Powder

Color Gray

Odor Obnoxious

Hazard Summary

WARNING!!

Toxic fumes may be released in fire situations.
May cause eye irritation.
Harmful if swallowed.
May be harmful if inhaled.
Cancer hazard.
Powdered material may form explosive dust-air mixture.
Slipping hazard.
Isolate area.
Keep upwind of spill.

Potential Health Effects

Eyes: May cause moderate eye irritation.
May cause slight corneal injury.

Skin: Brief contact is essentially nonirritating to skin.
Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: No adverse effects are anticipated from single exposure to dust.
Based on the available data, narcotic effects were not observed.
Based on the available data, respiratory irritation was not observed.

Ingestion: Moderate toxicity if swallowed.
Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Chronic Exposure: For the active ingredient(s):
Excessive exposure may produce organophosphate type cholinesterase inhibition.
Signs and symptoms of excessive exposure to active ingredient may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions.
In animals, effects have been reported on the following organs:
Adrenal gland.
Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.
For the minor component(s):
Crystalline silica has been shown to cause cancer in laboratory animals and humans.
Lung fibrosis and tumors have been observed in rats exposed to titanium dioxide in two lifetime inhalation studies. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Workers exposed to titanium dioxide in the workplace have not shown an unusual incidence of chronic respiratory disease or lung cancer.
Titanium dioxide was not carcinogenic in laboratory animals in lifetime feeding studies.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent
Chlorpyrifos	2921-88-2	50.0%
Calcium polysilicate	1344-95-2	29.0%
Kaolin	1332-58-7	>= 0.4 - <= 9.6 %
Titanium dioxide	13463-67-7	0.3%
Silica, crystalline (quartz)	14808-60-7	0.1%
Balance	Not available	>= 10.0 - <= 19.6 %

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. Attempt seizure control with diazepam 5-10 mg (adults) intravenous over 2-3 minutes. Repeat every 5-10 minutes as needed. Monitor for hypotension, respiratory depression, and need for intubation. Consider second agent if seizures persist after 30 mg. If seizures persist or recur administer phenobarbital 600-1200 mg (adults) intravenous diluted in 60 ml 0.9% saline given at 25-50 mg/minute. Evaluate for hypoxia, dysrhythmia, electrolyte disturbance, hypoglycemia (treat adults with dextrose 100 mg intravenous). Maintain adequate ventilation and oxygenation of the patient. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers.

Unsuitable extinguishing media: no data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion

products may include and are not limited to: Sulfur oxides. Phosphorous compounds. Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Do not permit dust to accumulate. When suspended in air dust can pose an explosion hazard. Minimize ignition sources. If dust layers are exposed to elevated temperatures, spontaneous combustion may occur. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Soak thoroughly with water to cool and prevent re-ignition. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Ventilate area of leak or spill. Isolate area. Spilled material may cause a slipping hazard. Keep unnecessary and unprotected personnel from entering the area. Keep upwind of spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to section 7, Handling, for additional precautionary measures.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Good housekeeping and controlling of dusts are necessary for safe handling of product. Keep away from heat, sparks and flame. Avoid contact with eyes. Do not swallow. Avoid breathing dust. Avoid contact with skin and clothing. Wash thoroughly after handling. Keep container closed. Keep out of reach of children. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Do not store near food, foodstuffs, drugs or potable water supplies.

Storage stability

Avoid temperatures above 70 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Chlorpyrifos	ACGIH	TWA Inhalable fraction and vapor	0.1 mg/m ³
	ACGIH	TWA	SKIN, BEI
	CA AB OEL	TWA	0.1 mg/m ³
	CA BC OEL	TWA Inhalable vapour and aerosols	0.1 mg/m ³
	CA AB OEL	TWA	Absorbed via skin
	CA QC OEL	TWAEV	0.2 mg/m ³
	CA QC OEL	TWAEV	Absorbed via skin
	CA BC OEL	TWA	Absorbed via skin
	CA ON OEL	TWAEV	Absorbed via skin
	ACGIH	TWA	SKIN, BEI
Calcium polysilicate	CA QC OEL	TWAEV Total	10 mg/m ³
Kaolin	ACGIH	TWA Respirable fraction	2 mg/m ³
	CA AB OEL	TWA Respirable	2 mg/m ³
	CA BC OEL	TWA Respirable	2 mg/m ³
	CA QC OEL	TWAEV Respirable	5 mg/m ³
Titanium dioxide	ACGIH	TWA	10 mg/m ³
	CA AB OEL	TWA	10 mg/m ³
	CA BC OEL	TWA	10 mg/m ³
	CA QC OEL	TWAEV Total	10 mg/m ³
Silica, crystalline (quartz)	CA AB OEL	TWA Respirable particulates	0.025 mg/m ³
	CA ON OEL	TWA Respirable fraction	0.1 mg/m ³
	CA QC OEL	TWAEV Respirable	0.1 mg/m ³
	CA BC OEL	TWA Respirable	0.025 mg/m ³

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be

handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, in dusty atmospheres, use an approved particulate respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Powder
Color	Gray
Odor	Obnoxious
Odor Threshold	no data available
pH	8.6 10% pH Electrode (10% mixture in water)
Melting point/range	No test data available
Freezing point	Not applicable
Boiling point (760 mmHg)	Not applicable
Flash point	closed cup Not applicable
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	May form combustible dust concentrations in air
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor Pressure	very low
Relative Vapor Density (air = 1)	Not applicable
Relative Density (water = 1)	Not applicable
Water solubility	<i>Visual</i> wettable powder
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Dynamic Viscosity	Not applicable
Kinematic Viscosity	Not applicable
Explosive properties	no data available
Oxidizing properties	no data available
Liquid Density	no testing required
Bulk density	0.277 g/cm ³ <i>Unspecified</i>
Molecular weight	no data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: no data available

Chemical stability: Unstable at elevated temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Avoid temperatures above 70 °C
Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with: Bases. Oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrogen cyanide. Organic sulfides. Sulfur dioxide.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Acute oral toxicity

Moderate toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product:
LD50, rat, female, 382 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:
LD50, rabbit, male and female, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.

As product:
LC50, rat, male and female, 4 Hour, Dust, > 2.53 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause moderate eye irritation.
May cause slight corneal injury.

Sensitization

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):

Excessive exposure may produce organophosphate type cholinesterase inhibition.

Signs and symptoms of excessive exposure to active ingredient may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions.

In animals, effects have been reported on the following organs:

Adrenal gland.

Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Carcinogenicity

For the minor component(s): Lung fibrosis and tumors have been observed in rats exposed to titanium dioxide in two lifetime inhalation studies. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Workers exposed to titanium dioxide in the workplace have not shown an unusual incidence of chronic respiratory disease or lung cancer. Titanium dioxide was not carcinogenic in laboratory animals in lifetime feeding studies.

For the minor component(s): Crystalline silica has been shown to cause cancer in laboratory animals and humans.

Active ingredient did not cause cancer in laboratory animals.

Teratogenicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity

Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.

Mutagenicity

For the active ingredient(s): Based on a majority of negative data and some equivocal or marginally positive results, active ingredient is considered to have minimal genetic toxicity potential.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

Carcinogenicity

Component

List

Classification

Kaolin

IARC

Group 1: Carcinogenic to humans

Titanium dioxide

IARC

Group 2B: Possibly carcinogenic to humans

Silica, crystalline (quartz)

IARC

Group 1: Carcinogenic to humans

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Toxicity

Chlorpyrifos

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 0.003 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 0.00068 mg/l

Acute toxicity to algae/aquatic plants

EC50, Skeletonema costatum, 96 Hour, Growth inhibition (cell density reduction), 0.255 - 0.328 mg/l

Toxicity to bacteria

EC50, activated sludge, > 100 mg/l

Chronic toxicity to fish

NOEC, Pimephales promelas (fathead minnow), 216 d, 0.000568 mg/l

MATC (Maximum Acceptable Toxicant Level), Pimephales promelas (fathead minnow), 216 d, 0.00226 - 0.00325 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), number of offspring, 0.000056 mg/l

MATC (Maximum Acceptable Toxicant Level), Daphnia magna (Water flea), number of offspring, 0.000075 mg/l

Toxicity to Above Ground Organisms

Material is highly toxic to birds on a dietary basis (LC50 between 50 and 500 ppm).

oral LD50, Other, 122mg/kg bodyweight.

dietary LC50, Colinus virginianus (Bobwhite quail), 8 d, 423mg/kg diet.

oral LD50, Apis mellifera (bees), 48 Hour, 0.36micrograms/bee

contact LD50, Apis mellifera (bees), 48 Hour, 0.070micrograms/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, 129 mg/kg

Calcium polysilicate

Acute toxicity to fish

No relevant data found.

Kaolin

Acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms.

Titanium dioxide

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis

(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
NOEC mortality, Leuciscus idus (Golden orfe), static test, 48 Hour, > 1,000 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 1,000 mg/l

Silica, crystalline (quartz)

Acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms.

Balance

Acute toxicity to fish

No relevant data found.

Persistence and degradability

Chlorpyrifos

Biodegradability: Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%).

10-day Window: Fail

Biodegradation: 22 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	0.000 %

Stability in Water (1/2-life)

Hydrolysis, half-life, 72 d

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: Radicaux OH

Atmospheric half-life: 1.4 Hour

Method: Estimated.

Calcium polysilicate

Biodegradability: Biodegradation is not applicable.

Kaolin

Biodegradability: Biodegradation is not applicable.

Titanium dioxide

Biodegradability: Biodegradation is not applicable.

Silica, crystalline (quartz)

Biodegradability: Biodegradation is not applicable.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential**Chlorpyrifos**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 4.7 at 20 °C Estimated.

Calcium polysilicate

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Titanium dioxide

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Silica, crystalline (quartz)

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Balance

Bioaccumulation: No relevant data found.

Mobility in soil**Chlorpyrifos**

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient(Koc): 8151

Calcium polysilicate

No relevant data found.

Silica, crystalline (quartz)

No relevant data found.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Chloropyrifos)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Chloropyrifos

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Chloropyrifos)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Chloropyrifos
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.(Chloropyrifos)
UN number	UN 3077
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act Registration Number: 20944

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
2	2	1

Revision

Identification Number: 101199476 / A215 / Issue Date: 12/04/2014 / Version: 5.2

DAS Code: XRM-4700

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

Absorbed via skin	Absorbed via skin
ACGIH	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA ON OEL	Canada. Ontario OELs
CA QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
SKIN, BEI	Absorbed via Skin, Biological Exposure Indice
TWA	8-hour time weighted average
TWAEV	time-weighted average exposure value

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



Dow AgroSciences

Lorsban™ NT Insecticide

GROUP	1B¹	INSECTICIDE
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- This product is not to be used in and around homes or other residential areas such as parks, school grounds, playing fields. It is not for use by homeowners or other uncertified users.
- Emulsifiable concentrate, contains chlorpyrifos

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

GUARANTEE: chlorpyrifos 452 g/L
This product contains 1,2-Benzisothiazolin-3-one as a preservative at 0.04%

REGISTRATION NO. 29650 PEST CONTROL PRODUCTS ACT

DANGER  **POISON**

**EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: 1 L - bulk

Dow AgroSciences Canada Inc.
2400, 215-2nd Street SW
Calgary, Alberta
T2P 1M4
1-800-667-3852

®™ Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

PRECAUTIONS
FATAL OR POISONOUS IF SWALLOWED
HARMFUL IF ABSORBED THROUGH SKIN
CAUSES EYE AND SKIN IRRITATION
POTENTIAL SKIN SENSITIZER
KEEP OUT OF REACH OF CHILDREN

Do not get in eyes, on skin or on clothing. Avoid breathing vapour or spray mist. Handle only with adequate ventilation. Wear protective clothing, impervious gloves and chemical worker's goggles when handling. Wash thoroughly with soap and water after handling and before eating or smoking. Immediately remove contaminated clothing and wash before reuse. Destroy contaminated leather articles including shoes. Do not apply this product in such a manner as to directly or through drift expose workers or other persons.

PRECAUTIONS FOR MIXERS/LOADERS

For containers more than 10 L:

Mixers/loaders must use a closed mechanical transfer loading system. Mixers/loaders must wear:

- coveralls over a long-sleeved shirt and long pants
- chemical-resistant gloves
- an air-purifying respirator with an -R or -P series filter
- shoes and socks

For containers holding 10 L or less:

Mixers/loaders must wear:

- coveralls over a long-sleeved shirt and long pants
- chemical-resistant gloves
- a chemical-resistant apron
- chemical-resistant footwear plus socks
- an air-purifying respirator equipped with an -R or -P series filter

PRECAUTIONS FOR APPLICATORS

Do not apply with high-pressure handwand equipment.

Applicators using ground application equipment with a closed cab must wear:

- a long-sleeved shirt and long pants
- chemical-resistant gloves when leaving cab for clean up and repair (gloves must be removed when re-entering the cab)
- socks and shoes

Applicators using ground application equipment with an open cab must wear:

- coveralls over a long-sleeved shirt and long pants
- chemical-resistant gloves
- socks and shoes

Applicators using aerial application equipment must use enclosed cockpits and must wear:

- a long-sleeved shirt and long pants
- socks and shoes

Applicators using handheld equipment must wear:

- a long-sleeved shirt and long pants
- chemical-resistant coveralls and head protection (if spray is upwardly directed)
- chemical-resistant footwear and socks
- chemical-resistant gloves
- an air purifying respirator with an -R or -P series filter

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Do not use or store near heat or open flame. Do not cut or weld container.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

Chlorpyrifos is an organophosphate that is a cholinesterase inhibitor. Typical symptoms of overexposure to cholinesterase inhibitors include headache, nausea, dizziness, sweating, salivation, runny nose and eyes. This may progress to muscle twitching, weakness, tremors, incoordination, vomiting, abdominal cramps and diarrhea in more serious poisonings. A life-threatening poisoning is signified by loss of consciousness, incontinence, convulsions and respiratory depression with a secondary cardiovascular component. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate degree of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as pralidoxime chloride, may be therapeutic if used early; however, use only in conjunction with atropine. In cases of severe acute poisoning, use antidotes immediately after establishing an open airway and respiration. With oral exposure, the decision of whether to induce vomiting or not should be made by an attending physician.

NOTE: Product contains a petroleum distillate solvent. Vomiting may cause aspiration pneumonia.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

Lorsban NT Insecticide is toxic to birds and wildlife and extremely toxic to fish and aquatic organisms. Do not apply directly to water. Drift and run-off from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Spilled material should be soaked up with absorbent material and disposed of in an approved manner. Do not contaminate water by cleaning of equipment or disposal of waste. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Avoid use when bees are actively foraging. Cereals grown for cover crop treated with Lorsban NT insecticide should not be harvested for human or animal consumption if treated within 60 days of harvest.

This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

- TOXIC to birds. Any spilled or exposed granules must be incorporated into the soil or otherwise cleaned-up from the soil surface.
- TOXIC to wild mammals. Any spilled or exposed granules must be incorporated into the soil or otherwise cleaned-up from the soil surface.
- TOXIC to bees exposed to direct treatment, drift, or residues on blooming plants. Do not use on flowering crops or weeds.

- TOXIC to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland
- DO NOT apply this product or allow it to drift to flowering crops or weeds if bees are visiting the treatment area. Applicators should inform local bee keepers prior to application if hives are in adjacent fields. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site.
- To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g., soils that are compacted or fine textured such as clay).
- Avoid application of this product when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.

STORAGE

Do not contaminate water, food or feed by storage or disposal of wastes.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Lorsban NT Insecticide is active against various insect pests by inhalation, contact and ingestion. It is not systemic in the plant system. This product is decomposed by sunlight. Treatment of plants that are under extreme drought stress may result in some crop damage.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or www.dowagro.ca, for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

MIXING INSTRUCTIONS

To prepare the spray, add approximately 1/4 of the required amount of water to the spray tank and with agitation add the Lorsban NT Insecticide. Complete filling the tank with the balance of water needed. Do not allow the pesticide to come in contact with the water intake pipe. Maintain sufficient agitation during both mixing and application to ensure uniformity of the spray mixture. To avoid damage to the crop mix Lorsban NT Insecticide only with pesticides listed on this label.

DIRECTIONS FOR USE

- **DO NOT** apply this product directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries habitats or marine habitats.
- **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- Application by aircraft is permitted only where specified in the directions for use.
- A plantback interval of 30 days must be observed between application and planting of rotational crops, with the exception of radish, Chinese cabbage, pak choi and cole crops for which no plantback restriction is required.

For all applications: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty.

Soil Applications

The higher rate of Lorsban NT Insecticide should be used when the soil surface is extremely dry or the insect infestation is heavy. When preplant soil applications of Lorsban NT Insecticide are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.

Foliar Applications

Best results will be obtained when application is made during the early evening. Apply as a broadcast application in sufficient water to ensure thorough coverage of the foliage.

Field Sprayer Applications ¹

Rate of Application (g a.i./ha)	Buffer Zones (metres) Required for the Protection of Aquatic Habitats With Water Depths Of:		
	< 1 metre	1–3 metre	> 3 metre
Up to 576	50	40	30
Greater than 576, and less than or equal to 1152	55	45	35
Greater than 1152 and up to 2304	60	50	40

¹ Buffer zones are not required for treatments applied as a drench (i.e., drench applications for control of cabbage maggot, onion maggot and seedcorn maggot).

NOTE: Applicators may recalculate a site-specific buffer zone by combining information on current weather conditions and spray configuration for the following applications: all airblast applications, and for field and aerial applications which specify the following droplet size category wording on the product label: 'DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) [Fine or Medium or Coarse] classification.' To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site.

Aerial Application

For aerial applications: DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. The nozzle type is restricted to CP®, with the following set-up restriction:

Nozzle Type	Restriction
CP®	DO NOT use greater than 30° deflection

For all aerial applications, a buffer zone of 100 metres is required for the protection of aquatic habitats.

Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. **Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.**

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

See specific crop instructions for additional precautions and recommended application rates.

DIRECTIONS FOR USE – SITES, PESTS, RATES AND DIRECTIONS

Economic thresholds are not given on this label. Apply Lorsban NT Insecticide when recommended by provincial authorities and according to provincial guidelines. **Do not add any additional adjuvants, surfactants or spreader stickers to Lorsban NT Insecticide.**

BARLEY, WHEAT, OATS

Pests	Rates and Directions	Restrictions
Armyworm (including bertha armyworm), army cutworm, darksided cutworm, pale western cutworm, redbacked cutworm	Apply 875 ml – 1.2 litres of product in 50–200 L/ha for ground application equipment or in 10–30 L/ha for aircraft. Apply to soil or foliage. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.	<ul style="list-style-type: none"> Do not apply more than once per season to barley or wheat. Do not apply within 60 days of harvest. Application is permitted by ground application equipment or aircraft where specified. Do not enter treated fields until 1 day after application.
Brown wheat mite	Apply 625 millilitres of product in 50–200 L/ha for ground application equipment or in 10–30 L/ha for aircraft. Apply as a foliar spray.	
Grasshoppers	Apply 580-875 millilitres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply as a broadcast foliar spray. Use the low rate for juvenile grasshoppers and the high rate for adults. Treat adjacent ungrazed and unoccupied areas such as roadsides, rights-of-way and fence lines at the first sign of infestation.	
Orange wheat blossom midge (WHEAT only)	Apply 830 ml – 1.0 litres of product in 50–200 L/ha for ground application. Apply 1.0 litres of product in 10–30 L/ha for aerial application. Apply when adults reach the economic threshold and when 25% of the wheat heads have emerged from the boot, but preferably delay spraying until 30% of the crop is flowering. Timing is critical to ensure good control. Applications should be made in the late afternoon or early evening when temperatures exceed 15°C and wind speed is less than 10 km/h.	
Russian wheat aphid	Apply 500 millilitres of product in a minimum of 100 L/ha for ground application equipment or in a minimum of 20 L/ha for aircraft. Apply as a foliar spray.	

CANOLA

Pests	Rates and Directions	Restrictions
Army cutworm, darksided cutworm, pale western cutworm, redbacked cutworm, variegated cutworm	Apply 875 ml – 1.2 litres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply to the soil or foliage. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.	<ul style="list-style-type: none"> Do not apply more than once per season. Do not apply within 21 days of harvest. Application is permitted by ground application equipment or aircraft where specified. Do not enter treated fields until 1 day after application.
Bertha armyworm, alfalfa looper, armyworm	Apply 750 millilitres (ml) -1.0 litres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply as a foliar spray. Use the higher rate of dilution when infestations are heavy and when the foliage is dense. Spray in the evening to reduce harm to pollinators.	
Diamondback moth (larvae)	Apply 1.0 – 1.5 litres of product in 100–200 L/ha for ground application equipment, or in 40 L/ha for aircraft. Apply as a foliar spray. Use the higher rate of dilution when infestations are heavy and when the foliage is dense. Spray in the evening to reduce harm to pollinators.	

Grasshoppers	Apply 580 – 875 millilitres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply as a foliar spray. Use the low rate for the control of juvenile grasshoppers and the high rate for the control of adult grasshoppers. Adjacent ungrazed and unoccupied areas such as roadsides, rights-of-way and fence lines should be treated at the first sign of infestation.	
Lygus bugs	Apply 500 ml – 1.0 litres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply as a foliar spray. Use the higher rate of dilution when infestations are heavy and when the foliage is dense. Spray in the evening to reduce harm to pollinators.	

CORN (FIELD, SWEET)

Pests	Rates and Directions	Restrictions
Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT (PREPLANTING) Apply 2.4 litres of product in 200–400 L/ha. Apply once as a soil treatment 3–7 days before planting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows.</p> <p>SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.</p>	<ul style="list-style-type: none"> Do not apply more than 1 application per season. Do not apply within 70 days of harvest. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application.

FLAX

Pests	Rates and Directions	Restrictions
Army cutworm, darksided cutworm, pale western cutworm, redbacked cutworm, variegated cutworm, armyworm	Apply 875 ml – 1.2 litres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply to the soil or foliage.	<ul style="list-style-type: none"> Do not apply more than once per season. Do not apply within 21 days of harvest. Application is permitted by ground application equipment or aircraft where specified. Do not enter treated fields until 1 day after application.
Bertha armyworm	Apply 750 ml – 1.0 litres of product in 50–200 L/ha for ground application equipment and 10–30 L/ha for aircraft. Apply as a foliar spray. Use the higher rate for larger larvae or when foliage is dense.	

LENTIL

Pests	Rates and Directions	Restrictions
Grasshoppers	Apply 580 ml – 1.2 litres of product in 50–200 L/ha for ground application equipment, or in 10–30 L/ha for aircraft. Apply once per year at the flowering to early podding stage of crop. Uniform coverage of the crop and the crop canopy is essential. Use the low rate for the control of juvenile grasshoppers and the high rate for the control of adult grasshoppers. Adjacent ungrazed and unoccupied areas such as roadsides, right-of-ways and fence lines should be treated at the first sign of infestation.	<ul style="list-style-type: none"> • Application is permitted by ground application equipment or aircraft where specified. • Do not apply more than once per season. • Do not apply within 21 days of harvest for applications up to 420 g a.i./ha. For application greater than 420 g a.i./ha, do not apply within 60 days of harvest. • Do not enter treated fields until 1 day after application.
Pale western cutworm	Apply 875 ml – 1.2 litres of product in 100–200 L/ha for ground application equipment, or in at least 20 L/ha for aircraft. Apply as a broadcast spray when damage first appears.	

SUNFLOWER

Pests	Rates and Directions	Restrictions
Army cutworm, pale western cutworm, redbacked cutworm	Ground application only (DO NOT APPLY BY AIRCRAFT). Apply 1.2 litres of product in 50–200 L/ha. Apply as a broadcast spray when damage first appears. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.	<ul style="list-style-type: none"> • Application is permitted by ground application equipment or aircraft where specified. • Do not apply more than once per season. • Do not apply within 42 days of harvest. • Do not enter treated fields until 1 day after application.
Seed weevil	Ground or aerial application. Apply 1.2 litres of product in at least 20 L/ha. Apply in late July to early August when populations of weevils are observed in the sunflower heads.	

CARROT

Pests	Rates and Directions	Restrictions
Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 – 4.8 litres of product in 200–400 L/ha. Apply once per season before planting. Application is also permitted on a 15 m strip adjacent to fence rows. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.</p> <p>SEEDLING TREATMENT Apply 2.4 – 4.8 litres of product in 200–400 L/ha. Apply as a broadcast spray at the 2- to 5-leaf stage. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry.</p>	<ul style="list-style-type: none"> • Ground application only (DO NOT APPLY BY AIRCRAFT). • Do not apply more than once per season. • Do not enter treated fields until 1 day after application. • Do not apply within 60 days of harvest.

CELERY, CUCUMBER, PEPPER (GREEN)

Pests	Rates and Directions	Restrictions
Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 litres of product in 200–400 L/ha. Apply once as a soil treatment 3–7 days before planting or transplanting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows.</p> <p>SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.</p>	<ul style="list-style-type: none"> • Do not apply more than once per season. • Do not apply within 70 days of harvest for celery, 40 days of harvest for pepper, or 60 days of harvest for cucumber. • Ground application only (DO NOT APPLY BY AIRCRAFT). • Do not enter treated fields until 1 day after application.

GARLIC

Pests	Rates and Directions	Restrictions
Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 litres of product in 200–400 L/ha. Apply once, 3–7 days before transplanting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows.</p> <p>SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.</p>	<ul style="list-style-type: none"> • Do not apply more than twice per season. • Do not apply within 50 days of harvest. • Ground application only (DO NOT APPLY BY AIRCRAFT). • Do not enter treated fields until 1 day after application.
Onion maggot	Apply 3.5 litres of product in 1000 L/ha. Apply as a drench to the soil over the seedling row.	

ONION (bulb, pickling)

Pests	Rates and Directions	Restrictions
Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 – 4.8 litres of product in 200–400 L/ha. Apply once per season before planting or transplanting. Application is also permitted on a 15 m strip adjacent to fence rows. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.</p> <p>SEEDLING TREATMENT Apply 2.4 – 4.8 litres of product in 200–400 L/ha. Apply as a broadcast spray at the 2- to 5-leaf stage. Use the low rate except under conditions of low soil moisture. Use the high rate if the top 1 cm of soil is dry.</p>	<ul style="list-style-type: none"> • Ground application only (DO NOT APPLY BY AIRCRAFT). • Do not apply more than once per season. • Do not enter treated fields until 1 day after application. • Do not apply to bunching onions. [See Rates and Directions] • Do not apply within 60 days of harvest.

PAK CHOI, BROCCOLI, BRUSSELS SPROUT, CABBAGE, CAULIFLOWER, CHINESE CABBAGE

Pests	Rates and Directions	Restrictions
Black cutworm, darksided cutworm, redbacked cutworm (for BROCCOLI, BRUSSEL SPROUTS, CABBAGE, CAULIFLOWER, CHINESE CABBAGE)	<p>SOIL TREATMENT Apply 2.4 litres of product in 200–400 L/ha. Apply once, 3–7 days before transplanting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows.</p> <p>SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.</p>	<ul style="list-style-type: none"> • Ground application only (DO NOT APPLY BY AIRCRAFT). • Do not enter treated fields until 1 day after application for pak choi and Chinese cabbages. Do not enter treated fields until 10 days after application for cauliflower, 1 day after application for all other crops. [See also below]
Cabbage maggot	<p>AT-PLANTING TREATMENT: Apply 210 millilitres of product/1000 m row. Apply one drench spray in 1000 L/ha spray solution, 10 cm on each side of the plant, 7–10 days after seeding or 3 days after transplanting.</p> <p>POST PLANTING DRENCH: Mix 1.68 litres of product in enough water to make 1000 L of finished spray. Apply 12.5 L of this solution per 100 m of row on soil, 10 cm on each side of the plant. Do not apply to harvestable portions of the crop.</p> <p>If no granular treatment was used at seeding: For broccoli, Brussels sprouts, cabbages and cauliflower, apply a drench treatment within 3 days of transplanting (after plant recovery) or 7–10 days after seeding. Repeat 21 days after the transplanting drench or 28 days after the seeding drench.</p>	<ul style="list-style-type: none"> • If no granular chlorpyrifos treatment has been used, do not apply more than twice per season to broccoli, cabbages, cauliflower, Chinese cabbages and pak choi, or three times per season to Brussels sprouts. • If granular treatment has been used, do not apply more than

		<p>once per season to broccoli, cabbages, cauliflower, Chinese cabbages and pak choi, or twice per season to Brussels sprouts.</p> <ul style="list-style-type: none"> Do not apply within 32 days of harvest for broccoli, Brussels sprouts, cabbages, cauliflower or Chinese cabbages; or within 15 days of harvest for pak choi.
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POTATO

Pests	Rates and Directions	Restrictions
Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray 3–7 days before planting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows.</p> <p>SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray when damage first appears.</p>	<ul style="list-style-type: none"> Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply more than once per season. Do not apply within 7 days of harvest. Do not enter treated fields to conduct scouting, hand weeding or irrigation activities until 1 day after application.
Colorado potato beetle (larvae), potato flea beetle, tarnished plant bug	Apply 1.0 litres of product in 400–800 L/ha as a foliar spray.	

RUTABAGA

Pests	Rates and Directions	Restrictions								
Black cutworm, darksided cutworm, redbacked cutworm	<p>SOIL TREATMENT Apply 2.4 litres of product in 200–400 L/ha. Apply once, 3–7 days before transplanting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows.</p> <p>SEEDLING TREATMENT Apply 1.2 – 2.4 litres of product in 200–400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.</p>	<ul style="list-style-type: none"> Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application. Do not apply within 30 days of harvest. [See also below] 								
Cabbage maggot	<p>Apply 210 millilitres of product in 125 L/1000 m row. Apply as a postplanting drench to soil, 10 cm on each side of the plant. Application rates for different row spacings are as follows:</p> <table border="1"> <thead> <tr> <th>Row Spacing</th> <th>Litres Product/ha</th> </tr> </thead> <tbody> <tr> <td>30 cm</td> <td>7.0</td> </tr> <tr> <td>60 cm</td> <td>3.5</td> </tr> <tr> <td>75 cm</td> <td>2.8</td> </tr> </tbody> </table>	Row Spacing	Litres Product/ha	30 cm	7.0	60 cm	3.5	75 cm	2.8	<ul style="list-style-type: none"> If no granular chlorpyrifos treatment has been used, do not apply more than 4 times per season. If granular chlorpyrifos
Row Spacing	Litres Product/ha									
30 cm	7.0									
60 cm	3.5									
75 cm	2.8									

	80 cm 2.63 90 cm 2.33 105 cm 2.0 Do not apply to harvestable portions of the crop. If no granular treatment was used at seeding, apply drench treatments at 10, 28, 49 and 70 days after seeding. If granular treatment with a chlorpyrifos insecticide was used at seeding, apply drench treatments at 28, 49 and 70 days after seeding.	treatment has been used, do not apply more than 3 times per season.
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STRAWBERRY

Pests	Rates and Directions	Restrictions
Strawberry cutworm (crown borer)	Apply 1.2 litres of product in 2000 L/ha. Apply once as a foliar spray between June 1 and June 15. Large volumes of water are desirable to ensure full wetting of the crown area of the plants.	<ul style="list-style-type: none"> Do not apply more than once per season. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply within 20 days of harvest. Do not enter treated fields until 1 day after application.

SUGARBEET

Pests	Rates and Directions	Restrictions
Pale western cutworm, redbacked cutworm	Apply 1.2 – 2.4 litres of product in 50–200 L/ha. Apply as a broadcast spray to crop seedlings when damage first appears. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm.	<ul style="list-style-type: none"> Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply more than once per season. Do not apply within 90 days of harvest. Do not enter treated fields until 1 day after application.

TOBACCO

Pests	Rates and Directions	Restrictions
Black cutworm, darksided cutworm, redbacked cutworm	SOIL TREATMENT Apply 2.4 – 4.8 litres of product in 200–400 L/ha. Apply once, 3–7 days before planting or transplanting. If the top 1 cm or more of soil is dry, use the higher rate. When preplant soil applications are being made to muck soil, do not incorporate. Incorporation on mineral soils should be no deeper than 5 cm. Also apply to a 15 m strip into adjacent cover crop and to fence rows.	<ul style="list-style-type: none"> Do not apply more than once per season. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 1 day after application.

Darksided cutworm	<p>COVER CROP TREATMENT Apply 1.125 - 1.2 litres of product in 200–400 L/ha. Darksided cutworms may feed on the cover crop before spring plough-down. Apply to the area planted to tobacco and to a strip about 15 m into nearby cover crop and fence rows. Application should be made in mid to late April, 4 to 5 days before plough-down. When the rye cover crop is about 15 cm tall, the cutworm larvae will be at the right stage for the best control. Cereals grown for cover crop treated with this insecticide should not be used for human or animal consumption if treated within 60 days of harvest.</p>	
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Preharvest Intervals

Time Between Last Application and Harvest	
Crop	Days
potato	7
Chinese cabbage, Pak-choi	15
strawberry	20
lentils (for applications up to 875 mL/ha), canola, flax	21
rutabaga (post-plant drench treatment)	28
rutabaga (pre-plant or seedling treatments)	30
broccoli, Brussels sprouts, cabbage, cauliflower	32
green pepper	40
sunflower	42
garlic	50
cucumber, lentils (for application greater than 875 mL/ha), barley, wheat, oats, bulb onion, carrot	60
celery, sweet and field corn (seedling treatment only)	70
Sugar beet	90

Restricted Entry Intervals

The worker restricted entry level (REI) is 24 hours for all crops except cauliflower (10 days) and filberts (2 days).

TANK-MIX COMBINATIONS WITH HERBICIDES

Lorsban NT Insecticide can be tank mixed with the herbicides listed for wheat, oats and barley. The mixture will control insect pests as well as broadleaved or grassy weeds as recommended on the labels of the products used. **Read carefully and follow all use directions and use precautions on both the Lorsban NT Insecticide label and the label of the herbicide to be used for tank mixing. Failure to follow the rates of use and timing of application as recommended for each product will result in unsatisfactory control of the insect or weed target pest.**

When tank mixing Lorsban NT Insecticide with the following herbicides, always add the herbicide to the spray tank and then add the Lorsban NT Insecticide:

- Banvel plus 2,4-D Amine
- Buctril M
- Glean Herbicide Dry Flowable
- MCPA Ester
- MCPA Amine
- Tordon™ 202C Liquid Herbicide
- 2,4-D Amine
- 2,4-D Ester

NOTE: If Lorsban NT Insecticide is added first, it may settle out and cause plugging of lines or nozzles.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the use(s) described below were developed by persons other than Dow AgroSciences Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Dow AgroSciences Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Dow AgroSciences Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described below.

DIRECTIONS FOR USE

ASIAN RADISH (LO BOK, DAIKON)

Pests	Rates and Directions	Restrictions
Cabbage maggot	Apply 210 millilitres in 1000 L of water per 1000 m row. Apply as a drench over seeded rows at 7, 20 and 35 days after seeding.	<ul style="list-style-type: none"> • Do not apply more than 3 times per season. • Ground application only (DO NOT APPLY BY AIRCRAFT). • Do not apply within 32 days of harvest. • Do not enter treated fields until 1 day after application.

CHINESE BROCCOLI

Pests	Rates and Directions	Restrictions
Cabbage maggot	Apply 150 millilitres of product in 800 L/1000 m row. Apply once per season banded over the row 5–7 days after seeding.	<ul style="list-style-type: none"> • Do not apply more than once per season. • Ground application only (DO NOT APPLY BY AIRCRAFT). • Do not apply within 21 days of harvest. • Do not enter treated fields until 1 day after application.

FILBERT

Pests	Rates and Directions	Restrictions
Filbert aphid	Apply 4.2 – 4.8 litres of product in 100 L/ha. Apply as a foliar spray with ground application only using an airblast sprayer. Direct nozzles of air blast sprayer into the orchard when spraying border rows.	<ul style="list-style-type: none"> Do not apply more than three times per season. Do not apply within 14 days of harvest. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not enter treated fields until 4 days after application to conduct scouting activities.

GREEN ONION

Pests	Rates and Directions	Restrictions
Onion maggot	Apply as a drench banded over the row. Apply 150 mL of product per 1000 metres of row using 800 litres of water per hectare (equivalent to 3.9 – 4.9 L of product/ha at row spacings of 30-38 cm). Lorsban NT should be applied at the time of set planting or 7 to 10 days after seeding.	<ul style="list-style-type: none"> Do not harvest within 30 days of treatment. Use a maximum of one application per year. Ground application only (DO NOT APPLY BY AIRCRAFT).

RADISH

Pests	Rates and Directions	Restrictions
Cabbage maggot	Apply 85 millilitres of product in 380 L of water per 1000 m row. Apply as a drench with seed at planting time.	<ul style="list-style-type: none"> Do not apply more than once per season. Ground application only (DO NOT APPLY BY AIRCRAFT). Do not apply within 21 days of harvest. Do not enter treated fields until 1 day after application.

Refer to the main Lorsban NT Insecticide label for additional details and instructions, including preharvest intervals, before using.

READ THE ROTATIONAL CROPPING RESTRICTIONS ON THE FULL LABEL BEFORE USING THIS PRODUCT.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FOREST: LODGEPOLE PINE

Pests	Rates and Directions	Restrictions
Mountain pine beetle	<p>Restricted Use NATURE OF RESTRICTION: This product is to be used only in the manner authorized. Contact local pesticide regulatory authorities about appropriate use permits that may be required.</p> <p>To be applied only under the direct supervision of commercial applicator responsible for insect control programs.</p> <p>For ground use only to control small infestations of mountain pine beetle in lodgepole pine forest stands. Monitor stands from mid-June to mid-July to determine the trees that are infested. Treat infested trees within a few weeks of expected beetle emergence, usually early July, to kill the adult beetles. Avoid spraying when conditions favour drift from spray area.</p> <p>Prepare a spray solution of 41.66 litres of product/1000 L of water to make a spray containing 2% active ingredient by weight. Apply at a rate of 1 L spray /m² of bark prior to adult beetle emergence. Treat boles from ground level up to a height of at least 3 m or until a bole diameter of 12.5 cm is reached.</p>	<ul style="list-style-type: none"> • Ground application only (DO NOT APPLY BY AIRCRAFT). • For use in Western Canada only.

PESTS OF ORNAMENTALS (COMMERCIAL PRODUCTION ONLY) - GREENHOUSES AND NURSERIES ONLY

Use Lorsban NT to treat flowers, shrubs, vines, shade and flowering trees and evergreens found to be infested with the pests listed in the following table. Dilute Lorsban NT with water according to directions given in the table and apply using suitable hand or power spray equipment in a manner to provide complete and uniform coverage. For best results apply a wetting spray to both upper and lower leaf surfaces and infested limb and trunk areas. Attempt to penetrate dense foliage but avoid overspraying to the point of excessive run-off. Treat when pests appear and repeat at 7 to 10 day intervals, if needed.

A re-entry interval of two days for workers conducting crop contact activities is required for use on Greenhouse Ornamentals.

NOTE: Environmental factors have significant effects on phytotoxic expression. Lorsban NT has been tested on numerous ornamental plants without causing serious phytotoxicity. However, do not use on azaleas, camellias, poinsettias, rose bushes or variegated ivy because of possible injury to these plants.

Pest	Amount of Product per 1000 L	Specific Host Plants
spittlebugs	88-150 mL	various ornamental plants
mealybugs	200 mL	various ornamental plants
aphids	375 mL	beech, birch, elm, hickory, linden, maple, oak, pine, flowering cherry, flowering plum, spruce, tulip tree, viburnum, willow, spirea, nasturtium
clover mite, European red mite, honey locust mite, red oak mite, spruce spider mite, two-spotted spider mite	375-500 mL	Arborvitae, juniper
borers such as ash and lilac borers	500 mL	locust, birch, mountain ash, willow, lilac
Eastern and forest tent caterpillars	500 mL	ash, birch
European pine sawfly, redheaded pine sawfly	500 mL	conifers, mountain ash
grasshoppers	500 mL	various ornamental plants
thrips	500 mL	various ornamental plants
whiteflies	500 mL	various ornamental plants
leafhoppers such as potato and six-spotted leafhoppers	1 L	various ornamental plants
scale insects such as lecanium, cottony maple, San Jose, oystershell	2 L	various ornamental plants

500 mL is equivalent to 226 g of chlorpyrifos per 1000 L

1 L is equivalent to 452 g of chlorpyrifos per 1000 L

2 L is equivalent to 904 g of chlorpyrifos per 1000 L

For Control of Japanese beetle (larvae)

Controls Japanese beetle (larvae) infesting soil in which outdoor ornamentals (including containerized nursery stock) are growing. Apply to the soil when grubs are young and actively feeding near the soil surface, usually during late July, August, September or as recommended by your local agricultural representative. Use at rates of 4.5 L/1000 L on various ornamental plants. Apply as a coarse, low pressure spray using suitable application equipment. Immediately after spraying irrigate the treated area with 1 to 2 cm of water to wash the insecticide into the underlying soil. Spraying may also take place in April and May.

For container grown stock: Submerge the entire root ball or container in a solution of 45 mL Lorsban NT /10L water (4.5 L/1000 L) until all bubbling stops. Remove plants from solution and allow to drain.

PESTS OF TURF (SOD FARMS ONLY)

Use Lorsban NT to control the pests listed in the following table by application at the recommended dosages and in accordance with the directions given below. Dilute Lorsban NT in enough water to obtain complete and uniform coverage of pest infested areas and apply as a coarse, low pressure spray using suitable application equipment. Do not use on ornamental plants including flowers, shrubs, vines, shade and flowering trees and evergreens.

Pest	Amount of Product per 100 m ²	Specific Directions
ants, chinch bugs, cutworms	22.5 mL	Spray when pests first appear, repeat when needed.
crane fly larvae (leatherjackets)	20-25 mL	Apply as drenching spray in water in late fall after the flight of adult crane flies has ceased for the year.
sod webworms	22.5 mL	For sod webworms delay watering or mowing the treated area for 12-24 hours after treatment.
turfgrass (hyperodes spp) weevil (annual and bluegrass weevil)	22.5 mL	Spray suspected problem areas in mid-April and again in mid-May, or as recommended by your local agricultural representative.

22.5 mL/100 m² = 112.5 mL/500 m² = 225 mL/1000 m² or 2.25 L/ha

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Lorsban NT Insecticide contains a Group 1B¹ insecticide. Any insect population may contain individuals naturally resistant to Lorsban NT Insecticide and other Group 1B¹ insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of Lorsban NT Insecticide or other Group 1B¹ insecticides with different groups that control the same pests in a field.
- Use tank mixtures with insecticides from a different group when such use is permitted.
- Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.dowagro.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

TMTrademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
All other products listed are registered trademarks of their respective companies.

113016

Label Code: CN-29650-003-E

Replaced: CN-29650-002-E

Specimen label notes:

Minor use added for the control of onion maggot on green onion.

SAFETY DATA SHEET

DOW AGROSCIENCES CANADA INC.

Product name: LORSBAN NT™ Insecticide

Issue Date: 06/26/2017

DOW AGROSCIENCES CANADA INC. encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container.

1. IDENTIFICATION

Product name: LORSBAN NT™ Insecticide

Recommended use of the chemical and restrictions on use

Identified uses: End use insecticide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
#2400, 215 - 2ND STREET S.W.
CALGARY AB T2P 1M4
CANADA

Customer Information Number:

800-667-3852solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid

Color White

Odor Mild

Hazard Summary

WARNING!!

May cause allergic skin reaction.

Harmful if swallowed.

May cause eye irritation.

May cause skin irritation.

May cause respiratory tract irritation.

Aspiration hazard. Can enter lungs and cause damage.

Isolate area.

Keep upwind of spill.

Toxic fumes may be released in fire situations.

Highly toxic to fish and/or other aquatic organisms.

Possible cancer hazard. May cause cancer based on animal data.

Potential Health Effects

Eyes: May cause moderate eye irritation.
May cause slight corneal injury.

Skin: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Brief contact may cause moderate skin irritation with local redness.
Has caused allergic skin reactions when tested in guinea pigs.
Has demonstrated the potential for contact allergy in mice.

Inhalation: No adverse effects are anticipated from single exposure to mist.
Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.
Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Ingestion: Moderate toxicity if swallowed.
Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death.
May be fatal if swallowed and enters airways.

Chronic Exposure: For the active ingredient(s):
Excessive exposure may produce organophosphate type cholinesterase inhibition.
Signs and symptoms of excessive exposure to active ingredient may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions.
In animals, effects have been reported on the following organs:
Adrenal gland.
Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.
Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
For the solvent(s):
In animals, effects have been reported on the following organs:
Kidney.
Liver.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Has caused birth defects in laboratory animals only at doses producing severe toxicity in the mother.
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent
Chlorpyrifos	2921-88-2	40.18%
Glycerol	56-81-5	2.5%
Solvent naphtha, petroleum, light aromatic	64742-95-6	20.0%
1,2,4-Trimethylbenzene	95-63-6	6.0%
1,3,5-Trimethylbenzene	108-67-8	1.6%
Cumene	98-82-8	0.8%
Xylene	1330-20-7	0.2%

Balance

Not available

28.72%

4. FIRST AID MEASURES

Description of first aid measures

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

Ingestion: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. This material is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Attempt seizure control with diazepam 5-10 mg (adults) intravenous over 2-3 minutes. Repeat every 5-10 minutes as needed. Monitor for hypotension, respiratory depression, and need for intubation. Consider second agent if seizures persist after 30 mg. If seizures persist or recur administer phenobarbital 600-1200 mg (adults) intravenous diluted in 60 ml 0.9% saline given at 25-50 mg/minute. Evaluate for hypoxia, dysrhythmia, electrolyte disturbance, hypoglycemia (treat adults with dextrose 100 mg intravenous). Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Sulfur oxides. Phosphorus oxides. Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep upwind of spill. Ventilate area of leak or spill. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation	
Chlorpyrifos	ACGIH	TWA Inhalable fraction and vapor	0.1 mg/m3	
	ACGIH	TWA	SKIN, BEI	
	CA AB OEL	TWA	0.1 mg/m3	
	CA AB OEL	TWA	SKIN	
	CA BC OEL	TWA Inhalable vapour and aerosols	0.1 mg/m3	
	CA QC OEL	TWAEV	0.2 mg/m3	
	CA QC OEL	TWAEV	SKIN	
	CA BC OEL	TWA	SKIN	
	Glycerol	CA AB OEL	TWA Mist	10 mg/m3
		CA BC OEL	TWA Mist	10 mg/m3
CA BC OEL		TWA Respirable mist	3 mg/m3	
CA QC OEL		TWAEV Mist	10 mg/m3	
Solvent naphtha, petroleum, light aromatic		ACGIH	TWA	200 mg/m3 , total hydrocarbon vapor
	CA AB OEL	TWA	200 mg/m3 , total hydrocarbon vapor	
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm	
	CA BC OEL	TWA	25 ppm	
	CA AB OEL	TWA	123 mg/m3 25 ppm	
	CA QC OEL	TWAEV	123 mg/m3 25 ppm	
1,3,5-Trimethylbenzene	ACGIH	TWA	25 ppm	
	CA BC OEL	TWA	25 ppm	
	CA AB OEL	TWA	123 mg/m3 25 ppm	
	CA QC OEL	TWAEV	123 mg/m3 25 ppm	
Cumene	ACGIH	TWA	50 ppm	
	CA AB OEL	TWA	246 mg/m3 50 ppm	
	CA QC OEL	TWAEV	246 mg/m3 50 ppm	
Xylene	ACGIH	TWA	100 ppm	
	ACGIH	STEL	150 ppm	
	ACGIH	TWA	BEI	
	ACGIH	STEL	BEI	
	CA AB OEL	STEL	651 mg/m3 150 ppm	
	CA AB OEL	TWA	434 mg/m3 100 ppm	
	CA QC OEL	TWAEV	434 mg/m3 100 ppm	
	CA QC OEL	STEV	651 mg/m3 150 ppm	
	CA BC OEL	TWA	100 ppm	
	CA BC OEL	STEL	150 ppm	

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid
Color	White
Odor	Mild
Odor Threshold	No test data available
pH	4.4 1% pH Electrode (1% aqueous suspension)
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	closed cup > 100 °C <i>Pensky-Martens Closed Cup ASTM D 93</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No data available
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	1.1253 at 20 °C <i>Unspecified</i>

Water solubility	emulsifiable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Dynamic Viscosity	No test data available
Kinematic Viscosity	No test data available
Explosive properties	No
Oxidizing properties	No significant increase (>5C) in temperature.
Liquid Density	1.12 g/cm ³ at 20 °C <i>Calculated.</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with: Acids. Oxidizers. Reducing agents.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Nitrogen oxides. Phosphorus oxides. Sulfur oxides. Toxic gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Moderate toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death.

LD50, Rat, male, 439 mg/kg

LD50, Rat, female, 495 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rat, male and female, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Maximum attainable concentration.

LC50, Rat, male and female, 4 Hour, dust/mist, > 1.91 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact may cause moderate skin irritation with local redness.

Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight corneal injury.

Sensitization

Has demonstrated the potential for contact allergy in mice.

Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation.

May cause drowsiness or dizziness.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):

Excessive exposure may produce organophosphate type cholinesterase inhibition.

Signs and symptoms of excessive exposure to active ingredient may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions.

In animals, effects have been reported on the following organs:

Adrenal gland.

Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

For the solvent(s):

Kidney.

Liver.

Blood.

For the minor component(s)

In animals, effects have been reported on the following organs:

Respiratory tract.

Carcinogenicity

Active ingredient did not cause cancer in laboratory animals.

For the minor component(s): Has caused cancer in laboratory animals. However, the relevance of this to humans is unknown.

Teratogenicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For the solvent(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Has caused birth defects in laboratory animals only at doses producing severe toxicity in the mother.

Reproductive toxicity

Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.

For the solvent(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. For the minor component(s): Reproductive effects seen in female animals are believed to be due to altered nutritional states resulting from extremely high doses of glycerine given in the diet. Similar effects have been seen in animals fed synthetic diets.

Mutagenicity

For the active ingredient(s): Based on a majority of negative data and some equivocal or marginally positive results, active ingredient is considered to have minimal genetic toxicity potential. For the solvent(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

May be fatal if swallowed and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

As product:

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, 0.166 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

As product:

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, 0.000548 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

As product:

EyC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Cell yield inhibition, 0.673 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to Above Ground Organisms

Material is highly toxic to birds on an acute basis (LD50 between 10 and 50 mg/kg).

As product:

oral LD50, *Colinus virginianus* (Bobwhite quail), 45mg/kg bodyweight.

As product:

oral LD50, *Apis mellifera* (bees), 48 Hour, 0.94µg/bee

As product:

contact LD50, Apis mellifera (bees), 48 Hour, 0.35µg/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, 311.3 mg/kg

Persistence and degradability

Chlorpyrifos

Biodegradability: Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%).

10-day Window: Fail

Biodegradation: 22 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	0.000 %

Stability in Water (1/2-life)

Hydrolysis, half-life, 72 d

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 1.4 Hour

Method: Estimated.

Glycerol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 63 %

Exposure time: 14 d

Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 1.22 mg/mg

Solvent naphtha, petroleum, light aromatic

Biodegradability: For the major component(s): Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). For some component(s): Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).

For the major component(s): Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. For some component(s): Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

1,2,4-Trimethylbenzene

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 4 - 18 %

Exposure time: 28 d

Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 3.19 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 0.641 d

Method: Estimated.

1,3,5-Trimethylbenzene

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Not applicable

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 301C or Equivalent

10-day Window: Not applicable

Biodegradation: 50 %

Exposure time: 4.4 d

Method: Calculated.

Theoretical Oxygen Demand: 3.19 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 3.7 Hour

Method: Estimated.

Cumene

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 70 %

Exposure time: 20 d

Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 3.20 mg/mg Estimated.

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	40%
10 d	62%
20 d	70%

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 1.55 d

Method: Estimated.

Xylene

Biodegradability: Material is expected to be readily biodegradable.

10-day Window: Pass

Biodegradation: > 60 %

Exposure time: 10 d

Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 3.17 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	37.000 %
10 d	58.000 %
20 d	72.000 %

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 19.7 Hour

Method: Estimated.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Chlorpyrifos

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 4.7 at 20 °C Estimated.

Glycerol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -1.76 at 20 °C Measured

Solvent naphtha, petroleum, light aromatic

Partition coefficient: n-octanol/water(log Pow): 3.3

1,2,4-Trimethylbenzene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 3.63 Measured

Bioconcentration factor (BCF): 33 - 275 Cyprinus carpio (Carp) 56 d Measured

1,3,5-Trimethylbenzene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 3.42 Measured

Bioconcentration factor (BCF): 161 Pimephales promelas (fathead minnow) Measured

Cumene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 3.4 - 3.7 Measured

Bioconcentration factor (BCF): 35.5 Fish Measured

Xylene

Bioconcentration factor (BCF): 25.9 Rainbow trout (Salmo gairdneri) Measured

Balance

Bioaccumulation: No relevant data found.

Mobility in soil**Chlorpyrifos**

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient (Koc): 8151

Glycerol

Potential for mobility in soil is very high (Koc between 0 and 50).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient (Koc): 1 Estimated.

Solvent naphtha, petroleum, light aromatic

Partition coefficient (Koc): > 60.7 - < 229.2 Estimated.

1,2,4-Trimethylbenzene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 720 Estimated.

1,3,5-Trimethylbenzene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 741.65 Estimated.

Cumene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 800 - 2800 Estimated.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Chlorpyrifos)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Chlorpyrifos

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Chlorpyrifos)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Chlorpyrifos
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Chlorpyrifos)
UN number	UN 3082
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act (PCPA) Registration Number: 29650

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
2	1	1

Revision

Identification Number: 101191993 / A215 / Issue Date: 06/26/2017 / Version: 6.0

DAS Code: GF-2153

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)
BEI	Biological Exposure Indices
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
SKIN	Absorbed via skin
SKIN, BEI	Absorbed via Skin, Biological Exposure Indice
STEL	15-minute occupational exposure limit
STEV	Short-term exposure value
TWA	8-hour time weighted average
TWAEV	Time-weighted average exposure value

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



Lumiderm™ Insecticide Seed Treatment

GROUP	28	INSECTICIDE
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SUSPENSION

FOR SALE FOR USE ON CANOLA, RAPESEED, OILSEED MUSTARD AND SOYBEANS

AGRICULTURAL

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

ACTIVE INGREDIENT: Cyantraniliprole 625 g/L

Contains 5-Chloro-2-methyl-2H-isothiazol-3-one at 0.00056% and 2-Methyl-2H-isothiazol-3-one at 0.00019% as a preservative.

REGISTRATION NO 30894 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 1 L –BULK

Special Use Restrictions

This product contains no colourant. An appropriate colourant must be added when this product is applied. Regulations pertaining to the SEEDS ACT must be strictly adhered to when using this product. Seed must be conspicuously coloured at the time of treatment.

Application to canola, rapeseed, and oilseed mustard must be completed by commercial treaters (facilities and mobile treaters) with closed transfer systems only. Application to soybeans in commercial facilities must be completed with closed transfer systems only. Closed transfer includes closed mixing, loading, calibrating, and closed treatment equipment only.

On-farm seed treatment is permitted for soybean only. Open transfer of Lumiderm is permitted for the on-farm treatment of soybeans only.

Production Agriscience Canada Company
P. O. Box 730
7398 Queen's Line
Chatham, Ontario
N7M 5L1
519-352-6350

PRECAUTIONS

- **KEEP OUT OF REACH OF CHILDREN.**
- Workers involved in the clean-up of seed treating equipment must wear chemical-resistant coveralls over a long-sleeved shirt and long pants, chemical resistant gloves, goggles or a face shield, chemical-resistant footwear, and a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested.
- Workers (treaters, baggers, sewers, stackers and forklift drivers) must wear a long-sleeved shirt, long pants, chemical-resistant gloves, sock and shoes. For good hygiene practice, where dust handling systems are not in use, it is recommended to wear a NIOSH-approved N95 (minimum) filtering facepiece respirator (dust mask) that is properly fit tested.
- Follow manufacturer's instructions for cleaning/maintaining personal protective equipment (PPE). If no such instructions for washables are available, use detergent and hot water. Keep and wash PPE separately from other laundry.
- Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Do not use treated seed for food, feed, or oil processing.
- Follow best management practices to help minimize dust exposure to pollinators during planting of treated seed; refer to the complete guidance "Pollinator Protection: reducing risk from treated seed" on the Health Canada website (www.healthcanada.gc.ca/pollinators).

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

ENVIRONMENTAL HAZARDS:

- Toxic to aquatic organisms.
- Toxic to bees. This product is systemic. However bees are unlikely to be exposed to product residues in pollen and/or nectar resulting from seed treatment applications. When this product is applied and used according to label directions, risk to bees is expected to be negligible.
- **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

GENERAL INFORMATION

Lumiderm™ Insecticide Seed Treatment is a flowable suspension that is applied as a seed treatment for early season protection from flea beetle feeding damage for 28 to 35 days and early season protection from cutworm feeding damage in canola, rapeseed and oilseed mustard.

Lumiderm Insecticide Seed Treatment also provides a reduction of feeding damage from soybean aphid and bean leaf beetle in soybeans for 28 to 35 days and reduction of early season feeding damage to soybeans from seedcorn maggot, Japanese beetle, European and masked chafers, and wireworms.

DIRECTIONS FOR USE

This product contains no colourant. An appropriate colourant must be added when this product is applied. Regulations pertaining to the SEEDS ACT must be strictly adhered to when using this product. Seed must be conspicuously coloured at the time of treatment.

CANOLA, RAPESEED, OILSEED MUSTARD

SITE	PEST	RATE mL of Lumiderm Insecticide Seed Treatment per 100 kg seed	SPECIFIC DIRECTIONS
CANOLA, RAPESEED, OILSEED MUSTARD	Flea beetles	960 to 1600	The application rates for flea beetles will also provide early season protection from cutworm feeding damage.
	Cutworms	480 to 960	Use the higher rates in areas with high pest pressure, or where extended early season control is required.
Restrictions	Lumiderm Insecticide Seed Treatment is for use in commercial seed treatment (facilities and mobile treaters) using a closed transfer system only. It is not for use in on-farm treating systems such as hopper-box or slurry-box applications just prior to planting. DO NOT use open transfer systems Apply only in areas with adequate ventilation or in areas that are equipped to remove mist or dust.		

SOYBEANS

SITE	PEST	RATE of Lumiderm Insecticide Seed Treatment per seed	SPECIFIC DIRECTIONS
Soybean (<i>Glycine max</i>)	Soybean Aphid Bean Leaf Beetle	0.075 to 0.200 mg ai/ seed	Use the higher rates in areas with high pest pressure, or where extended early season control is required.

	Seedcorn Maggot (<i>Delia platura</i>) Japanese Beetle (<i>Popillia japonica</i>) European Chafer (<i>Amphimallon majalis</i>) Masked Chafers (<i>Cyclocephala</i> spp.) Wireworms (Elateridae)	0.0375 to 0.125 mg ai/seed	Use the higher rates in areas with high pest pressure, or where extended early season control is required.
Restrictions	<u>Commercial Facilities</u> Lumiderm Insecticide Seed Treatment is for use in commercial seed treatment facilities using a closed transfer systems only. DO NOT use open transfer systems. Apply only in areas with adequate ventilation or in areas that are equipped to remove mist or dust. <u>On-Farm</u> On-farm seed treatment is permitted for soybean only. Open transfer of Lumiderm is permitted for the on-farm treatment of soybeans only.		

Do not make a subsequent foliar application of any Group 28 insecticide for a minimum of 60 days after planting seed treated with Lumiderm Insecticide Seed Treatment.

TANK MIX COMBINATIONS WITH COMMERCIAL SEED TREATMENTS FOR USE ON CANOLA, RAPESEED AND OILSEED MUSTARD ONLY

Lumiderm Insecticide Seed Treatment may be tank mixed with Prosper^{EverGol} Seed Treatment, Helix Xtra Seed Treatment or Helix Vibrance Seed Treatment at labelled rates for early season control of flea beetles, early season protection from cutworm feeding damage, and control of diseases on the recommended tank mix partner labels.

SEED TREATMENT	RATE (mL product per 100 kg seed)	TARGET PESTS
Lumiderm Insecticide Seed Treatment	640	Cutworms Flea beetles Seed and seedling diseases listed on tank mix partner labels
+ Prosper ^{EverGol} Seed Treatment	+	
OR	1400	
Helix Xtra Seed Treatment	OR	

OR	1500	
Helix Vibrance Seed Treatment	OR	
	1500	

When tank mixing Lumiderm Insecticide Seed Treatment, users must follow label instructions for both Lumiderm Insecticide Seed Treatment and the tank mix partner.

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Production Agriscience Canada Company.

Seed Storage

Field and laboratory tests have demonstrated that application of Lumiderm Insecticide Seed Treatment to canola, rapeseed, mustard and soybean seed will not negatively affect germination. However, due to seed quality and seed storage conditions beyond the control of Production Agriscience Canada Company, no claims are made to guarantee the germination of carry-over seed.

Treatment of damaged seed, or seed known to be of low vigour and poor quality, may result in reduced germination and/or seed and seedling vigour. In cases where seed quality is unknown, treat a small portion of the seed with Lumiderm Insecticide Seed Treatment and confirm acceptable germination, prior to treating the entire seed lot.

MIXING INSTRUCTIONS

Dilute in a sufficient volume to obtain thorough, uniform coverage.

Polymers, colourants, and other additives should be tested for compatibility and seed safety prior to use in combination with Lumiderm Insecticide Seed Treatment.

ROTATIONAL CROP RESTRICTIONS

Recommended Plant-Back Intervals (PBI) for Rotational Crops

PBI	CROPS
0 days	Crop Subgroup 1B (Root Vegetables, except sugar beet); Crop Subgroup 1C (Tuberous and Corm Vegetables); Crop Group 2 (Leaves of Root and Tuber Vegetables); Crop Group 3-07 (Bulb Vegetables); Crop Group 4 (Leafy Vegetables, except <i>Brassica</i> vegetables); Crop Group 5 (<i>Brassica</i> (Cole) Leafy Vegetables); Crop Group 6 (Legume Vegetables, Succulent or Dried); Crop Group 7 (Foliage of legume vegetables); Crop Group 8-09 (Fruiting Vegetables); Crop Group 9 (Cucurbit Vegetables); Crop Subgroup 13-07A (Caneberries); Crop Subgroup 13-07B (Bushberries); Crop Subgroup 13-07H (Low Growing Berries, except Strawberries); Crop Group 20 (Oilseeds); peanuts; strawberries
30 days	Crop Group 1A (Root and Tuber Vegetables); Crop Group 15 (Cereal grains); Crop Group 16 (Forage, fodder, and straw of cereal grains); Crop Group 17 (Grass forage, fodder, and hay); Crop Group 18 (Nongrass animal feeds: Forage, fodder, straw and hay)
365 days	Other crops

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Lumiderm Insecticide Seed Treatment contains a Group 28 insecticide. Any insect population may contain individuals naturally resistant to Lumiderm Insecticide Seed Treatment and other Group 28 insecticides. The resistant individuals may dominate the insect population if this group of insecticides is used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of Lumiderm Insecticide Seed Treatment or other Group 28 insecticides with different groups that control the same pests.
- Use tank mixtures with insecticides from a different group when such use is permitted.
- Insecticide use should be based on an IPM program that includes scouting and record keeping, and considers cultural, biological and other chemical control practices.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact Production Agriscience Canada Company at 1-800-667-3852.

STORAGE

Store product in original container only, away from other pesticides, fertilizer, food or feed. Not for use or storage in or around the home. Keep container closed. To prevent contamination store this product away from food or feed.

DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

FOR RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR RETURNABLE CONTAINERS

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

FOR REFILLABLE CONTAINERS

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

FOR DISPOSABLE CONTAINERS

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty, rinsed container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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All other products mentioned are trademarks of their respective companies.

011619

Label Code: CN-30894-002-E

Replaces: CN-30894-001-E

Specimen Notes: Phone number deletion

Lumiderm™ Insecticide Seed Treatment

Version 3.0

Issue Date : 04/05/2019 Ref. 130000052722
Revision Date : 04/01/2019

This SDS adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Lumiderm™ Insecticide Seed Treatment
 Tradename/Synonym : B12922526

SDS Number : 130000052722

Product Use : Insecticide
 Manufacturer : Production Agriscience Canada Company
 P.O. Box 730, 7398 Queen's Line
 Chatham, Ontario
 N7M 5L1
 Canada

Product Information : 1-800-667-3852
 Medical Emergency : 1-800-441-3637 (24 hours)

SECTION 2. HAZARDS IDENTIFICATION

Potential Health Effects
 Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Cyantraniliprole	736994-63-1	50 %
Other Ingredients		50 %

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SECTION 4. FIRST AID MEASURES

- Skin contact : Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- Eye contact : Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
- Inhalation : Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
- Ingestion : Call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Do not give anything by mouth to an unconscious person.
- General advice : Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For medical emergencies involving this product, call toll free 1-800-441-3637. See Label for Additional Precautions and Directions for Use.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray, Foam, Dry chemical, Carbon dioxide (CO2)
- Unsuitable extinguishing media : High volume water jet, (contamination risk)
- Firefighting Instructions : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. (on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers/tanks with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

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- Safeguards (Personnel) : Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Use personal protective equipment.
- Spill Cleanup : Soak up with sawdust, sand, oil dry or other absorbent material. Dispose of in an approved container. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum.
- Accidental Release Measures : Prevent material from entering sewers, waterways, or low areas.

SECTION 7. HANDLING AND STORAGE

- Handling (Personnel) : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/PPE immediately if material gets inside. Wash thoroughly and put on clean clothing.
- Handling (Physical Aspects) : Keep away from heat and sources of ignition.
- Storage : Store product in original container only in a location inaccessible to children and pets. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Not for use or storage in or around the home. Keep out of the reach of children.
- Storage temperature : > 0 °C (> 32 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal protective equipment

- Skin and body protection : Applicators and other handlers must wear:
- Long sleeved shirt and long pants
 - Shoes plus socks
 - Chemical resistant gloves made of any waterproof material
- Personal protective equipment required for early entry:

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Long sleeved shirt and long pants
Shoes plus socks
Chemical resistant gloves made of any waterproof material

Protective measures : Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Exposure Guidelines

Exposure Limit Values

Cyantraniliprole			
AEL *	(DuPont)	3 mg/m3	8 hr. TWA
AEL *	(DuPont)	2 mg/m3	12 hr. TWA

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form : liquid
Color : off-white
Odor : characteristic
pH : 5 - 7
Bulk density : 1.0 - 1.5 g/cm3
Water solubility : dispersible

SECTION 10. STABILITY AND REACTIVITY

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Stability : Stable at normal temperatures and storage conditions.
Conditions to avoid : Protect from frost.
Incompatibility : None reasonably foreseeable.

SECTION 11. TOXICOLOGICAL INFORMATION

Lumiderm™ Insecticide Seed Treatment

Inhalation 4 h LC50 : > 2.2 mg/l , Rat
Dermal LD50 : > 5,000 mg/kg , Rat
Oral LD50 : > 5,000 mg/kg , Rat
Skin irritation : No skin irritation, Rabbit
Eye irritation : No eye irritation, Rabbit
Sensitisation : Animal test did not cause sensitization by skin contact., multiple species

Cyantraniliprole

Repeated dose toxicity : The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Oral
Rat
28 - 90 d
Thyroid effects, Organ weight changes, No effect to neurotoxicity.

Dermal
Rat
28 d
No toxicologically significant effects were found.

Oral
Mouse
90 d
No toxicologically significant effects were found.

Oral

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Dog
90 d
altered blood chemistry, Liver effects, Vascular arteritis

Oral
multiple species
28 d
Immune System, No toxicologically significant effects were found.

Oral
Rat
14 d
No toxicologically significant effects were found.

Oral
Dog
365 d
Liver effects, Gallbladder effects, altered blood chemistry, Vascular arteritis

Inhalation
Rat
28 d
No toxicologically significant effects were found.

- Carcinogenicity : Not classifiable as a human carcinogen.
Animal testing did not show any carcinogenic effects.
- Reproductive toxicity : No toxicity to reproduction
Animal testing showed no reproductive toxicity.
- Teratogenicity : Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity
Cyantraniliprole
96 h LC50 : Oncorhynchus mykiss (rainbow trout) > 12.6 mg/l

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96 h LC50 : Lepomis macrochirus (Bluegill sunfish) > 13 mg/l
72 h ErC50 : Pseudokirchneriella subcapitata (green algae) > 13 mg/l
7 d ErC50 : Lemna gibba (duckweed) > 12.1 mg/l
48 h EC50 : Daphnia magna (Water flea) 0.0204 mg/l
21 d NOEC : Daphnia magna (Water flea) 0.00969 mg/l

Additional ecological information : Environmental Hazards: Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate. See product label for additional application instructions relating to environmental precautions.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal : Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container disposal: : Container Refilling and Disposal:
Refer to the product label for instructions.
Do not transport if this container is damaged or leaking.
In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

SECTION 14. TRANSPORT INFORMATION

IATA_C	UN number	: 3082
	Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (Cyantraniliprole)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
IMDG	UN number	: 3082
	Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cyantraniliprole)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9

Lumiderm™ Insecticide Seed Treatment

Version 3.0

Issue Date : 04/05/2019 Ref. 130000052722
Revision Date : 04/01/2019

Marine pollutant : yes (Cyantraniliprole)

Not regulated as a hazardous material by TDG.

SECTION 15. REGULATORY INFORMATION

Other regulations : This product is toxic to: Aquatic organisms Bees

PCP Registration # : 30894
Remarks : No substances are subject to a Significant New Activity Notification.

SECTION 16. OTHER INFORMATION

MSDS preparation date : 04/01/2019

(TM) Trademark of E.I. du Pont de Nemours and Company.

Contact person : Production Agriscience Canada Company, Chatham, Ontario, N7M 5L1

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Mad Dog Plus

Liquid Herbicide

AGRICULTURAL AND INDUSTRIAL

CAUTION -- EYE IRRITANT

WATER SOLUBLE HERBICIDE FOR NON-SELECTIVE WEED CONTROL

REGISTRATION NO. 30076 PEST CONTROL PRODUCTS ACT

GUARANTEE: Glyphosate, 360 grams acid equivalent per litre present as isopropylamine salt.

Warning, contains the allergen soy

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING.

READ NOTICE BEFORE BUYING OR USING. IF NOTICE TERMS ARE NOT ACCEPTABLE, RETURN AT ONCE UNOPENED.

IN CASE OF EMERGENCY DUE TO A MAJOR SPILL, FIRE OR POISONING INVOLVING THIS PRODUCT CALL DAY OR NIGHT, 1-800-561-8273

LOVELAND PRODUCTS CANADA INC.
789 DONNYBROOK DRIVE
DORCHESTER, ONTARIO
N0L 1G5
1-800-328-4678

NET CONTENTS: 10, 115, 450, 750 L, Bulk

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

MAY CAUSE EYE IRRITATION.

HARMFUL IF SWALLOWED.

Avoid contact with eyes or prolonged contact with skin.

For good hygiene practice, wear a long-sleeved shirt, long pants, and chemical resistant gloves during mixing, loading, cleanup or repair activities.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at: www.croplife.ca

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target plants. Avoid direct applications to any body of water. Do not contaminate water by disposal of waste or cleaning of equipment. Observe buffer zones specified under Directions for use.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fibreglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

EMERGENCY TELEPHONE NUMBERS:

IN CASE OF EMERGENCY DUE TO A MAJOR SPILL, FIRE OR POISONING INVOLVING THIS PRODUCT CALL DAY OR NIGHT, 1-800-561-8273

For additional information on this product, call Loveland Products Canada Inc: 1-800-328-4678.

STORAGE

Avoid contamination of seed, feed, and foodstuffs.

Soak up small amounts of spill with absorbent clays.

The minimum recommended storage temperature for this material is -12°C (10°F).

If allowed to freeze, warm to 21°C/ 70°F and shake well.

AVOID CONTACT WITH FOLIAGE, GREEN STEMS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

DISPOSAL

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE TO USER – This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

Not for relabeling or repackaging.

Monsanto and the vine symbol are trademarks of Monsanto Technology LLC., Monsanto Canada Inc. - Licensee

Mad Dog Plus

Liquid Herbicide

AGRICULTURAL and INDUSTRIAL

CAUTION - EYE IRRITANT

REGISTRATION NO. 30076 PEST CONTROL PRODUCTS ACT

GUARANTEE: Glyphosate, 360 grams acid equivalent per litre, present as isopropylamine salt.

Warning, contains the allergen soy

WATER SOLUBLE HERBICIDE FOR NON-SELECTIVE WEED CONTROL

READ THE LABEL BEFORE USING.

LOVELAND PRODUCTS CANADA INC.
789 DONNYBROOK DRIVE
DORCHESTER, ONTARIO
N0L 1G5
1-800-328-4678

(FRANÇAIS AU VERSO)

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Mad Dog Plus

1.0 PRODUCT DESCRIPTION

Water soluble herbicide for non-selective weed control in CROPLAND SYSTEMS AND IN NON-CROPLAND AREAS.

CROPLAND USES INCLUDE:

In cropping systems before planting of all crops; in minimum tillage systems; postemergent in glyphosate tolerant canola, soybean and corn i.e., varieties with the Roundup Ready® gene; preharvest applications in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), peas, lentils, dry beans, soybeans and forages; in pasture renovation; in forage, legume and grass establishments; in tree crops including apple, pear, cherry, plum, peach, apricot, filbert, hazelnut, walnut, chestnut and Japanese heartnut; in grapes, cranberries, blueberries and strawberry; in sugar beets; in asparagus; in North American ginseng; in tree plantings; and grasses for seed production.

NON-CROPLAND USES INCLUDE:

Industrial, recreational, rights-of-way, and public areas; turf grass renovation.

NOT FOR RELABELLING OR REPACKAGING.

Roundup Ready is a registered trademark, Monsanto and the Vine symbol are trademarks of Monsanto Technology LLC., Monsanto Canada Inc. – Licensee.

2.0 EMERGENCY NUMBERS

IN CASE OF EMERGENCY DUE TO A MAJOR SPILL, FIRE OR POISONING INVOLVING THIS PRODUCT CALL DAY OR NIGHT, 1-800-561-8273

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

2.1 INFORMATION

For additional information on this product, call Loveland Products Canada Inc: 1-800-328-4678.

3.0 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.
MAY CAUSE EYE IRRITATION.
HARMFUL IF SWALLOWED.

Avoid contact with eyes or prolonged contact with skin.
For good hygiene practice, wear a long-sleeved shirt, long pants, and chemical-resistant gloves during mixing, loading, clean-up or repair activities.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at: www.croplife.ca

3.1 FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

3.2 TOXICOLOGICAL INFORMATION

Treat symptomatically.

3.3 ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target plants. Avoid direct applications to any body of water. Do not contaminate water by disposal of waste or cleaning of equipment. Observe buffer zones specified under Directions for Use.

3.4 PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas

which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

3.5 STORAGE

Avoid contamination of seed, feed, and foodstuffs.

Soak up small amounts of spill with absorbent clays.

The minimum recommended storage temperature for this material is -12°C (10°F). If allowed to freeze, warm to 21°C/ 70°F and shake well.

3.6 DISPOSAL

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

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For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE

NOTICE TO USER – This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

DIRECTIONS FOR USE

4.0 GENERAL INFORMATION

Do not apply this product using aerial spray equipment except under conditions as specified within this label.

Observe buffer zones specified in Section 5.3.

For tank mixtures, always follow the most restrictive label when applying

Mad Dog Plus, a water soluble liquid, mixes readily with water for application as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

This herbicide moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Delay application until vegetation has emerged to the stages described for control of such vegetation under the “**Annual and Perennial Weed Control**” (section 7.0 and 8.0) to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per hectare within the recommended range when weed growth is heavy or dense, or weeds are growing in an undisturbed (non-cultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This product does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the precautionary statements and all other information appearing on the labels of all herbicides used.

Rainfall occurring within 60 minutes of treatment may result in reduced weed control. Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of run-off.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, Mad Dog Plus is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to Mad Dog Plus and other Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Mad Dog Plus or other Group 9 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Loveland Products Canada Inc, 1-800-328-4678

5.0 MIXING AND APPLICATION

5.1 PRECAUTIONS

ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

DO NOT USE IN GREENHOUSES, REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

Clean sprayers and parts immediately after using this product by thoroughly flushing with water. Do not contaminate water sources by disposal of wastes or cleaning of

equipment.

NOTE: Use of this product in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

5.2 MIXING AND APPLICATION EQUIPMENT INFORMATION

MIXING

For ground or industrial type sprayers, fill the spray tank with one-half the required amount of water. Add the proper amount of herbicide, see “**Weed Control**” (sections 7.1 and 8.1) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent excessive foaming. Removing hose from tank immediately will avoid back siphoning into water source. Use of mechanical agitators may cause excessive foaming. Bypass lines should terminate at the bottom of the tank.

For use in knapsack sprayers, it is suggested that the proper amount of this herbicide be mixed with water in a larger container. Fill sprayer with the mixed solution.

APPLICATION EQUIPMENT

BOOM EQUIPMENT

For control of perennial weeds and woody brush and trees listed on this booklet using conventional boom equipment – apply this product in 50 to 300 litres of clean water per hectare as a broadcast spray using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

For control of annual weeds listed on this booklet using conventional boom equipment – Apply this product in 50 to 100 litres of clean water per hectare as a broadcast spray, except as otherwise stated on this label using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

HAND HELD AND HIGH VOLUME EQUIPMENT (use coarse sprays only)

For control of weeds and woody brush and trees listed in the “Weed Control” section (6.0) of this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements – Unless otherwise specified, make a 1 percent solution of this product in water (1 litre of this product in 100 litres of water) and apply to foliage of vegetation to be controlled. For best results, use a 2 percent solution (2 litres of this product in 100 litres of water) on harder to control perennials such as field bindweed, hemp dogbane, milkweed and Canada thistle.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of run-off. Handgun applications should be

properly directed to avoid spraying desirable plants.

SELECTIVE EQUIPMENT

Selective equipment such as **WIPER** and **ROLLER** applicators can be used for weed control in soy and dry beans, orchards, vineyards, cranberries, strawberries and non-crop areas. For information regarding use of this product with selective equipment, refer to “**Selective Equipment**” (section 9.12).

AERIAL EQUIPMENT

Aerial application can only be used for weed control in pre-harvest situations or industrial rights-of-way. Refer to sections 5.3, 9.9.2 and 10.2.2 for application information.

Directions for use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 - 1000) range.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of a spotter plane is recommended.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Loveland Products Canada Inc. at 1-800-328-4678, or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume 30-100 litres per hectare.

5.3 BUFFER ZONES

- i) **DO NOT** apply during periods of dead calm or when winds are gusty. **DO NOT** apply with spray droplets smaller than ASAE medium classification.
- ii) Aerial Application: **DO NOT** apply when wind speed is greater than 16 km/h (preharvest) or 8 km/h (rights-of-way) at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the ASAE coarse classification.

iii) Buffer Zones

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands). Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Method of Application	Buffer Zones (metres) required for protection of:		
	Aquatic Habitat		Terrestrial Habitat
Field sprayer*	15		15
Aerial (preharvest only)	25		55
Aerial** (rights-of-way only)	One Application Per Season	Two Applications Per Season (i.e. buffer zone below is for 2 nd application)	-
Aircraft:			
Fixed Wing:	50	85	-
Helicopter:	20	35	-

*For field sprayers, buffer zones can be reduced by 70% when using shrouds or 30% when using cones.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixtures.

**Coarse ASAE (VMD=385.2 µm); Release height from aircraft <= 10 m.

6.0 WEEDS CONTROLLED

This product controls many annual and perennial grasses, broadleaf weeds, and woody brush and trees when applied as recommended and under conditions described. For information on how to control specific weeds including herbicide rate, refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (sections 7.1 and 8.1). The following is a partial list of weeds controlled:

6.1 ANNUAL WEEDS

ANNUAL GRASSES

Barnyard Grass

Echinochloa crusgalli

Blue Grass (annual)

Poa annua

Crab Grass (large)

Digitaria sanguinalis

Crab Grass (smooth)

Digitaria ischaemum

Downy Brome Grass

Bromus tectorum

Fall Panicum

Panicum dichotomiflorum

Giant Foxtail

Setaria faberii

Green Foxtail

Setaria viridis

Persian Darnel

Lolium persicum

Volunteer Barley

Hordeum spp.

Volunteer Corn

Zea mays

Volunteer Wheat

Triticum spp.

Wild Oats

Avena fatua

Wild Proso Millet

Panicum miliaceum

Yellow Foxtail

Setaria glauca

OTHER

Dodder

Cuscuta spp.

ANNUAL BROADLEAF WEEDS

Chickweed

Stellaria media

Cleavers

Galium aparine

Cocklebur

Xanthium strumarium

Corn Spurry

Spergula arvensis

Cow Cockle

Saponaria vaccaria

Eastern Black Nightshade

Solanum ptycanthum

Fleabane (Canada)

Erigeron canadensis

Flixweed

Descurainia sophia

Green Smartweed

Polygonum scabrum

Hemp-nettle

Galeopsis tetrahit

Kochia

Kochia scoparia

Lady's-Thumb

Polygonum persicaria

Lamb's-quarters (common)

Chenopodium album

Narrow-leaved Hawk's Beard

Crepis tectorum

Narrow-leaved Vetch

Vicia angustifolia

Night-flowering Catchfly

Silene noctiflora

Pennsylvania Smartweed

Polygonum pennsylvanicum

Prickly Lettuce

Lactuca scariola

Ragweed (common)

Ambrosia artemisiifolia

Redroot Pigweed

Amaranthus retroflexus

Round-Leaved Mallow

Malva pusilla

Russian Thistle

Salsola pestifer

Shepherd's Purse

Capsella bursa-pastoris

Smooth Pigweed

Amaranthus hybridus

Sowthistle (annual)

Sonchus oleraceus

Stinkweed

Thlaspi arvense

Storksbill

Erodium cicutarium

Velvetleaf

Abutilon theophrasti

Volunteer Canola (rapeseed)

Brassica spp.

Volunteer Flax

Linaria spp.

Wild Buckwheat

Polygonum convolvulus

Wild Mustard

Sinapis arvensis

Wild Tomato

Solanum triflorum

6.2 PERENNIAL WEEDS

PERENNIAL GRASSES/SEDGES

Blue Grass (Canada)

Poa compressa

Blue Grass (Kentucky)

Poa pratensis

Brome Grass (smooth)

Bromus inermis

Cattail (common)

Typha latifolia

Foxtail Barley

Hordeum jubatum

Quackgrass

Agropyron repens

Wire-Stemmed Muhly

Muhlenbergia frondosa

Yellow Nutsedge

Cyperus esculentus

PERENNIAL BROADLEAVED WEEDS

Alfalfa

Medicago spp.

Cottontop

Eriophorum chamissonis

Curled Dock

Rumex crispus

Dandelion

Taraxacum officinale

Field Bindweed

Convolvulus arvensis

Hemp Dogbane

Apocynum cannabinum

Hoary Cress

Cardaria draba

Knotweed (Japanese)

Polygonum cuspidatum

Milkweed (common)

Asclepias syriaca

Poison Ivy

Rhus radicans

Purple Loosestrife

Lythrum salicaria

Sow-Thistle (perennial)

Sonchus arvensis

Thistle (Canada)

Cirsium arvense

Toad Flax

Linaria vulgaris

Wormwood (Absinth)

Artemisia absinthium

6.3 WOODY BRUSH AND TREES

Alder

Alnus spp.

Birch

Betula spp.

Broadleaved meadowsweet

Spiraea latifolia

Cedar

Thuja spp.

Cherry

Prunus spp.

Douglas Fir

Pseudotsuga spp.

Hemlock

Tsuga spp.

Maple

Acer spp.

Mountain-fly honeysuckle

Lonicera villosa

Pine

Pinus spp.

Poplar

Populus spp.

Raspberry/Salmonberry

Rubus spp./Rubus spectabilis

Rhododendron (Canadian)

Rhododendron canadense

Sheep laurel

Kalmia angustifolia

Snowberry (Western)

Symphoricarpos occidentalis

Sweet fern

Comptonia peregrina

Willow

Salix spp.

Withrod

Viburnum cassinoides

CROPLAND USES

ALWAYS READ PRECAUTIONARY STATEMENTS, GENERAL INFORMATION AND MIXING AND APPLICATION PRECAUTIONS (SECTIONS 3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

7.0 ANNUAL WEED CONTROL

The following tables provide rates and specific application instructions for control of the annual weeds listed.

7.1 ANNUAL WEED CONTROL WITH MAD DOG PLUS

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.75	Weeds up to 8 cm in height	Wild oats, green foxtail, volunteer barley, volunteer wheat Non-glyphosate tolerant volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed	<ul style="list-style-type: none"> • For wild oats apply at 1-3 leaf stage. • Add 350 mL of a surfactant registered for use such as Agral® 90, Ag Surf®, or Companion™ • For heavy wild oat infestations use 1.0 L/ha rate.
1.0	Weeds 8 cm to 15 cm in height	All annual grasses listed above. All annual broadleaved weeds listed above plus flixweed* and kochia*	<ul style="list-style-type: none"> • Add 350 mL of surfactant registered for use as listed above. <p>* Suppression only. Refer to higher rates of this table or tank mix table (section 7.2) for control options.</p>
1.25 – 1.9	Weeds up to 15 cm in height	All annual grasses listed above plus downy brome, giant foxtail, and Persian dandel. All annual broadleaved weeds listed above plus cleavers, lamb's-quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, narrow-leaved hawk's beard***	<ul style="list-style-type: none"> • No surfactant required. • For tank mix weed control options see section 7.2. <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3-4 leaf stage use 1.9 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.9 L/ha rate.</p>
2.25	Weeds up to 15 cm in height	All annual grasses listed above plus crab grass and annual blue grass All annual broadleaved weeds listed above plus	<ul style="list-style-type: none"> • For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
		kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch	
3.5	Weeds over 15 cm in height	All annual grasses and broadleaved weeds listed above	• For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).

Agral is a registered trademark of Syngenta Crop Protection Canada Inc.

Ag Surf is a registered trademark of Interprovincial Cooperative Ltd.

Companion is a trademark of Dow AgroSciences LLC.

NOTE: For spot treatment, 0.75 – 3.5 litres per hectare is approximately equivalent to 8 – 35 mL/100m², respectively.

7.2 ANNUAL WEED CONTROL WITH MAD DOG PLUS TANK MIXTURES

FOR SUMMERFALLOW & MINIMUM TILLAGE SYSTEMS

FOLLOW THE MORE RESTRICTIVE LABEL FOR THE APPLICATION OF THESE TANK MIXES

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
Mad Dog Plus + Banvel® Herbicide	0.75 – 1.0 + 0.29	Volunteer cereals, wild oats, green foxtail Non-glyphosate tolerant volunteer canola (rapeseed), wild mustard, flixweed*, lamb's-quarters, lady's-thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix is registered for summerfallow use only . Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * Mad Dog Plus applied at 1.0 L/ha rate only. ** Suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant – see list in section 7.3.
Mad Dog	0.75 –	Volunteer cereals, green	This tank mix is registered only

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
Plus + Pardner®	1.0 + 1.25	foxtail, volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed, wild buckwheat* Redroot pigweed**, kochia**, wild oats**	<p>for use in summerfallow, and prior to wheat, oats and barley in minimum tillage systems.</p> <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* Use Mad Dog Plus at 1.0 L/ha rate only for wild buckwheat control.</p> <p>** 1.0 L/ha rate, suppression only. See other tank mixtures for control options.</p> <p>Add 350 mL/ha of surfactant – see list in section 7.3.</p>
Mad Dog Plus + 2,4-D ^A	1.25 – 1.9 + 0.6 – 0.9 ⁴ or 1.2 – 1.5 ⁵	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, and Persian darnel.</p> <p>Volunteer canola, (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia, lamb's-quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***</p> <p>Volunteer Roundup Ready canola (1-4 leaf stage)⁴, bluebur⁴, burdock⁴, cocklebur⁴, common</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3-4 leaf stage use 1.9 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.9 L/ha rate.</p> <p>⁴ 2,4-D at 0.6 – 0.9 L/ha (280 – 420 g ai/ha).</p> <p>⁵ 2,4-D at 1.2 – 1.5 L/ha (560 – 700 g ai/ha).</p> <p>Use this tank mix prior to seeding</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
		<p>plantain⁴, daisy fleabane⁴, false flax⁴, false ragweed⁴, goat's beard⁴, mustards⁴ (except dog and tansy), prickly lettuce⁴, ragweeds⁴, Russian pigweed⁴, shepherd's purse⁴, stinging nettle⁴, sweet clover⁴, thyme-leaved spurge⁴, wild radish⁴, wild sunflower⁴</p> <p>Volunteer Roundup Ready canola (4-6 leaf stage)⁵, annual sow thistle⁵, common chickweed⁵, common purslane⁵, dog and tansy mustard⁵, oak-leaved goosefoot⁵, common groundsel⁵, hairy galinsoga⁵, hawkweed⁵, heal-all⁵, knotweed⁵, peppergrass⁵, pineapple weed⁵, prostrate pigweed⁵, purslane⁵, sheep sorrel⁵, green smartweed⁵, tumble pigweed⁵, velvetleaf⁵, volunteer canola (rapeseed)⁵</p>	<p>or after seeding but before crop emergence in wheat, winter wheat, barley and rye.</p> <p>No surfactant required.</p>
<p>Mad Dog Plus + 2,4-D^B</p>	<p>0.75 – 1.0 + 1.2</p>	<p>Volunteer cereals, wild oats* and green foxtail*</p> <p>Volunteer canola (rapeseed), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia</p> <p>Lamb's-quarters**, Russian thistle**</p>	<p>This tank mix is registered for summerfallow use only. Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* Use Mad Dog Plus at 1.0 L/ha rate only for wild oat and green foxtail control.</p> <p>** Suppression only. See other tank mixtures for control options.</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
			Add 350 mL/ha of surfactant – see list in section 7.3.
Mad Dog Plus + MCPA ^C 500 g/L formulation, if another formulation is used, adjust rate accordingly	1.25 – 1.9 + 0.5 – 0.7 ¹ OR 0.5 – 1.0 ²	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, and Persian darnel. Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard*** Volunteer Roundup Ready canola (1-4 leaf stage) ^{1,2} , bluebur ³ , burdock ³ (before 4 leaf stage), false flax ³ , flixweed ³ , lamb's quarters ³ , mustards ³ (except dog and tansy), prickly lettuce ³ , ragweeds ³ , redroot pigweed ³ , Russian pigweed ³ , shepherd's purse ³ , stinkweed (field pennycress) ³ , vetch ³ , wild radish ³ , wild sunflower ³	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3-4 leaf stage use 1.9 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.9 L/ha rate. ¹ MCPA amine at 0.5 – 0.7 L/ha (250-350 g ai/ha) prior to peas. ² MCPA at 0.5 – 1.0 L/ha (250-500 g ai/ha) prior to wheat, barley, oats, corn (field and sweet) ^C , rye and flax. ³ MCPA at 0.7 – 1.0 L/ha (350 – 500 g ai/ha) only. Use this tank mix prior to seeding in wheat, barley, rye, oats, corn (field and sweet) ^C , flax, and field peas ^C No surfactant required.
Mad Dog Plus + Buctril M	1.25 – 1.9 + + +	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail and Persian darnel. Volunteer canola	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
Herbicide	0.5 – 1.0 ¹	<p>(rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***</p> <p>Volunteer Roundup Ready Canola (1-4 leaf stage)^{1,2}</p> <p>Seedlings up to the 4-leaf stage²: green smartweed, pale smartweed, lady's thumb, cow cockle, redroot pigweed, flixweed, bluebur, shepherd's purse, kochia³, Russian thistle³, scentless chamomile⁴, volunteer sunflower, night flowering catchfly, cocklebur, velvetleaf⁵, ball mustard, American nightshade</p> <p>Seedlings up to the 6-leaf stage²: wild tomato</p> <p>Seedlings up to the 8-leaf stage²: wild buckwheat, tartary buckwheat, common buckwheat, stinkweed, wild mustard, wormseed mustard, lamb's quarters, common ragweed, common groundsel</p> <p>Perennials (top growth)²:</p>	<p>*DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3-4 leaf stage use 1.9 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.9 L/ha rate.</p> <p>¹ Buctril M at 0.5 – 1.0 L/ha (280-560 g ai/ha) for all crops listed.</p> <p>² Buctril M at 1.0 L/ha (560 g ai/ha only).</p> <p>³ Spray before plants are 5 cm high.</p> <p>⁴ Spring annuals only.</p> <p>⁵ Spray before plants are 8 cm high.</p> <p>Use this tank mix prior to seeding in wheat, barley, rye, oats, corn, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow brome grass, seedling streambank wheatgrass and reed canary grass.</p> <p>No surfactant required.</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
		Canada thistle, perennial sow thistle	
Mad Dog Plus + MCPA amine (500 g/L formulation; if another formulation is used, adjust rate accordingly)	1.25 – 1.9 + 0.5 – 0.7	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, and Persian darnel.</p> <p>Volunteer canola (rapeseed) (non Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***</p> <p>Volunteer Roundup Ready canola (1-4 leaf stage)³, bluebur⁴, burdock⁴ (before 4 leaf stage), false flax⁴, flixweed⁴, lamb's quarters⁴, mustards⁴ (except dog and tansy), prickly lettuce⁴, ragweeds⁴, redroot pigweed⁴, Russian pigweed⁴, shepherd's purse⁴, stinkweed⁴ (field pennycress), vetch⁴, wild radish⁴, wild sunflower⁴</p>	<ul style="list-style-type: none"> • Weeds should be less than 15 cm tall and actively growing for best results. • Use higher rate if weeds are beyond 8 cm in height. <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3-4 leaf stage use 1.9 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.9 L/ha rate.</p> <p>³ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to lentils and chickpeas.</p> <p>⁴ MCPA amine at 0.7 L/ha (350 g ai/ha) only.</p> <p>Use this tank mix prior to seeding in lentil and chickpea. Under drought conditions, deep seeding and/or brief rain showers after seeding may cause injury to emerging seedlings in sprayer overlaps.</p> <ul style="list-style-type: none"> • No surfactant required.
Mad Dog Plus + Express	1.27 – 1.93	Volunteer cereals, Canada thistle (suppression), cow cockle, wild buckwheat, Canada fleabane common ragweed narrow-leaved hawk's	Use this tank mix in summerfallow or prior to seeding wheat and barley. Refer to Express Toss-N-Go label for the appropriate weed growth

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
Toss-N-Go Herbicide Or Express Toss-N-Go Dry Flowable 75% Herbicide	+ 10 g/ha (7.5 g ai/ha)	beard, dandelion, downy brome, flixweed, giant foxtail, green foxtail, hempnettle, kochia, lady's thumb, lamb's quarters, persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer canola, volunteer flax, wild mustard, wild oats	stage. Add 350 mL/ha of surfactant – see list in section 7.3.

♦ For foxtail barley, refer to “**Perennial Weed Control**” table (section 8.1).

^B 0.56 kg ai/ha of 2,4-D. ^B, ^A Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

^C Use only amine formulations of MCPA prior to seeding in corn and field peas.

Banvel is a registered trademark of BASF Corporation.

Pardner and Bucril are registered trademarks of Bayer.

Express is a registered trademark of E.I. DuPont Canada Company.

Toss-N-Go is a registered trademark of DuPont Canada Inc.

7.3 SURFACTANT INFORMATION

NOTE: Addition of Surfactant – Mad Dog Plus tank mixtures for annual weed control may require the addition of a surfactant registered for use such as Agral 90, Ag-Surf or Companion. Refer to Section 7.2 for recommendations. Surfactant should be added at a rate of 350 millilitres per hectare, in 50 - 100 litres of clean water.

7.4 ADDITIONAL IMPORTANT INFORMATION FOR ANNUAL WEED CONTROL

Mad Dog Plus, applied by itself, will not control volunteers from crops containing the Roundup Ready Gene.

Allow at least 1 day after treatment before tillage.

Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds, in some situations.

For additional information and precautions, refer to “**General Information**” and “**Mixing and Application**” (Sections 4.0 and 5.0, respectively).

7.5 WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA (I.E., VARIETIES WITH THE ROUNDUP READY GENE)

WARNING: APPLY MAD DOG PLUS ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY (I.E., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to “**General Information**” and “**Mixing and Application**” (sections 4.0 and 5.0, respectively).
- Apply Mad Dog Plus in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visual yellowing may occur when Mad Dog Plus is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT APPLY BY AIR.

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

WEED CONTROL IN CANOLA WITH THE ROUNDUP READY GENE

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
0.825 – 1.875	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’s-quarters, non-glyphosate tolerant volunteer canola</p>	<ul style="list-style-type: none"> • Repeat applications may be required if a second flush of weeds germinates prior to canopy closure. • Ensure the crop has not advanced beyond the recommended growth stage. <p>* Use the 1.25 L/ha rate for control of these weeds at all</p>

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
		<p>(rapeseed), hempnettle, lady's-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers*, wild buckwheat*, shepherd's purse*, cow cockle*, night-flowering catchfly*, smartweed*, storksbill*, flixweed*, narrow-leaved hawk's beard*, round-leaved mallow***</p> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sow thistle, dandelion</p> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sow thistle****</p>	<p>crop growth stages. The lower rate can be used for control of shepherd's purse, cow cockle and night-flowering catchfly at the 1 – 3 leaf stage of the crop or for control of smartweed at the 4 – 6 leaf stage.</p> <p>** A single application at the 1.25 L/ha rate is required.</p> <p>*** Sequential applications at the 1.25 L/ha rate are required.</p> <p>****Sequential applications at the 1.25 L/ha rate are required or a single application of 1.875 L/ha.</p> <ul style="list-style-type: none"> • For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. • Maximum 2.5 L/ha is allowed for the postemergence use.

7.5.1 TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in glyphosate tolerant canola (i.e., varieties with the Roundup Ready Gene), apply a tank mixture of 0.28 L/ha of Lontrel 360 with 1.25 L/ha of Mad Dog Plus, in 100 litres of water per hectare. Apply when canola is in the 2-6 leaf stage. Refer to the Lontrel 360 and to the Mad Dog Plus labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

Lontrel is a registered trademark of Dow AgroScience LLC.

7.6 WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN ie. VARIETIES WITH THE ROUNDUP READY2 YIELD® GENE OR ROUNDUP READY SOYBEAN VARIETIES

7.6.1 Weed Control in Glyphosate Tolerant Soybean ie. Roundup Ready2 Yield Soybean Varieties

WARNING: APPLY MAD DOG PLUS ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY (I.E., VARIETIES WITH THE ROUNDUP READY 2 YIELD GENE).

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
2.5	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, Russian thistle, non-Roundup Ready canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night flowering catchfly, stork's bill, flixweed, narrow leaved hawk's-beard common milkweed ^{1,2} ,	¹ A single application of 2.5 L/ha will provide suppression only. ² For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be at least 2 weeks after the first application. <ul style="list-style-type: none"> • A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application made must be applied no later than the flowering stage of the soybean. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
		<p>yellow nutsedge^{1,2}, field bindweed², perennial sow thistle, Canada thistle. wire-stemmed muhly.</p> <p>Bur cucumber (<i>Sicyos angulatus</i>)³</p> <p>Volunteer adzuki beans (<i>Vigna angularis</i>)⁴</p> <p>Biennial Wormwood (<i>Artemisia biennis</i>)⁵</p>	<ul style="list-style-type: none"> • Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. • Wire-stemmed muhly should be 10-20 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment. • ³Sequential applications of 2.5 L/ha followed by 2.5 L/ha at the 1-18 leaf stage. Applications should be at least 2 weeks apart for best results. • ⁴For control of volunteer adzuki beans (unifoliolate to the 4th trifoliolate leaf stage) apply 2.5 L/ha. A second 2.5 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliolate to fourth trifoliolate leaf stage and actively growing • ⁵ Only one application per season at 2.5 L/ha. Biennial wormwood should be at 2-8 leaf stage and actively growing.
5.0	First trifoliolate leaf stage through flowering	All weeds listed above plus horse-nettle ⁶ and tall waterhemp ⁶	<ul style="list-style-type: none"> • Only one application per season at 5.0 L/ha. • Common milkweed should be 15-60 cm in height and

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
			<p>actively growing.</p> <ul style="list-style-type: none"> • Yellow nutsedge should be 5-15 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment. <p>⁶For season-long control of horse-nettle (<i>Solanum carolinense</i>) (2- to 12-leaf stage) or, for control of tall waterhemp (<i>Amaranthus tuberculatos</i>) (up to and including the 18-leaf stage) apply 5.0 L/ha. Alternatively, sequential applications of 2.5 L/ha followed by 2.5 L/ha may be applied. Applications should be at least 2 weeks apart for best results.</p> <p>⁶For the control of Tall Waterhemp use the higher rate if weeds are beyond the 6-leaf stage.</p>
7.0	First trifoliolate leaf stage through flowering	All weeds listed above plus control of volunteer alfalfa and bromegrass	<p>Only one application per season at 7.0 L/ha.</p> <p>Alfalfa should have 9 or more leaves and be at least 10-15 cm tall.</p> <p>Bromegrass should have at least 3-5 leaves and be at least 10-15 cm tall.</p> <p>Short term yellowing may occur in sprayer overlap areas with the 7.0 L/ha application rate. This effect is temporary and will not</p>

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
			influence crop growth or yield.

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

7.6.2 WEED CONTROL IN GLYPHOSATE TOLERATE SOYBEAN ie ROUNDUP READY SOYBEAN VARIETIES

WARNING: APPLY MAD DOG PLUS ON GLYPHOSATE TOLERANT SOYBEAN ie. ROUNDUP READY SOYBEAN VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT ie. ROUNDUP READY. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

Apply 2.5 – 5.0 L/ha of Mad Dog Plus to Glyphosate Tolerant soybean ie. Roundup Ready soybean varieties.

See Section 7.6.1 for use directions.

Do not apply the 7 L/ha rate to non-Glyphosate tolerant soybean such as Roundup Ready2 Yield soybean varieties.

7.6.3 TANK MIXTURES

Tank mixtures may be applied to both Roundup Ready2 Yield and Roundup Ready soybean varieties.

Mad DogPlus tank mixed with Pursuit Herbicide

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit herbicide may be tank mixed with Mad Dog Plus at a rate of 2.5 liters per hectare. Use 0.16 to 0.21 liters per hectare of Pursuit herbicide and apply up to and including the 3rd trifoliolate leaf stage of the glyphosate tolerant soybeans in 100-200 liters per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimeters (20 inches) or more

where a single application timing is desired.

Mixing: Add and mix Pursuit herbicide as per instructions on the Pursuit herbicide label and then add Mad Dog Plus as per instructions on this label.

A PHI of 100 days is required for the tank mix of Mad Dog Plus and Pursuit herbicide on glyphosate tolerant soybeans such as Roundup Ready² yield soybeans.

Only one application per season of Mad Dog Plus at 2.5 liters per hectare tank mixed with Pursuit herbicide at 0.16 to 0.21 liters per hectare is permitted.

Refer to the Pursuit herbicide label for further safety precautions and handling instructions.

Mad Dog Plus Tank Mixed with FirstRateTM Herbicide (For Use in Eastern Canada Only)

For added residual control of common ragweed, velvetleaf, cocklebur, jimsonweed and giant ragweed, FirstRate Herbicide may be tank mixed with Mad Dog Plus at a rate of 1.25 – 2.5 liters per hectare. Use 20.8 grams per hectare of FirstRate Herbicide.

Do not harvest soybean plants for forage or hay. Do not harvest soybeans for 65 days after application.

Only one application per season of Mad Dog Plus tank mixed with FirstRate Herbicide is permitted.

Refer to the FirstRate Herbicide label for further safety precautions and handling instructions.

Mad Dog Plus Tank Mixed with Classic 25 DF Herbicide*

For season-long control of dandelion, annual sow thistle, and yellow nutsedge*, apply Classic 25 DF Herbicide at 36 grams per hectare plus either Mad Dog Plus at 2.5 litres per hectare. Add a non-ionic surfactant such as Agral 90, Citowett Plus, or Ag-Surf at 0.2% v/v. Apply when soybeans are in the 1-3 trifoliolate stage; dandelions and annual sow thistle less than 15 cm tall and across; and up to the 8 leaf stage for yellow nutsedge. **USE THIS TANK MIXTURE ONLY ON GLYPHOSATE TOLERANT SOYBEAN ie. SOYBEANS WITH THE ROUNDUP READY[®] TRAIT.**

Consult the Classic 25 DF Herbicide label for tank mixing instructions and use precautions including instructions on replanting to other crops.

*Use this tank mix only in cases of heavy infestation of yellow nutsedge.

Mad Dog Plus Tank Mixed with Sencor® 75 DF Herbicide for Control of Spreading Atriplex (Eastern Canada only)

For the control of spreading atriplex, apply a preplant application of Sencor 75 DF Herbicide at 0.75 - 1.11 kg product per hectare on medium textured soils or 1.11 – 1.5 kg product per hectare on fine textured soils plus Mad Dog Plus at 2.5 litres per hectare. Do not apply on coarse textured soils. Apply when spreading atriplex is up to the 10-leaf stage of growth. Only one application per year is permitted.

Refer to the Sencor 75 DF Herbicide label for further use directions, safety precautions and handling instructions. Consult Table entitled "Sencor 75 DF Alone: Preemergence Application" for specific rates based on soil types and organic matter.

Mad Dog Plus Tank Mixed with Assure® II Herbicide

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED ♦	COMMENTS
2.5 - 5.0 L/ha Mad Dog Plus + 0.25 - 0.38 L/ha Assure II Herbicide	First trifoliolate leaf stage through flowering.	Volunteer Roundup Ready corn. Apply at the 2- to 6-leaf stage of the weed.	See additional information following this table.

*Sure Mix may or may not be added to this tank mix

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

Volunteer Glyphosate Tolerant Corn Control

For control of volunteer glyphosate tolerant corn, Assure II herbicide may be tank mixed with Mad Dog Plus. Use 2.5 to 5.0 litres per hectare Mad Dog Plus and 0.25 - 0.38 litre per hectare of Assure II herbicide.

The higher rate of Assure II may be required when there are high populations of volunteer glyphosate tolerant corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 300 litres per hectare of clean water.

Mixing: Add and mix Assure II herbicide as per instructions on the Assure II herbicide label and then add Mad Dog Plus as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliate leaf stage through flowering and when the volunteer glyphosate tolerant corn is at the 2- to 6-leaf stage.

A PHI (preharvest interval) of 80 days is required for the tank-mix Mad Dog Plus and Assure II herbicide on glyphosate tolerant soybeans ie. Roundup Ready2 Yield soybeans.

Refer to the Assure II Herbicide label for further safety precautions and handling instructions.

Mad Dog Plus Tank Mixed with Venture® L Herbicide

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED ♦	COMMENTS
2.5 – 5.0 L/ha MAD DOG Plus Herbicide + 0.45 - 0.60 L/ha Venture L Herbicide**	First trifoliate leaf stage through third trifoliate leaf stage	Volunteer Roundup Ready corn. Apply at the 2- to 5-leaf stage of the weed.	See additional information following this table.

*Turbocharge may or may not be added to this tank mix

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

For control of volunteer glyphosate tolerant corn, Venture L Herbicide may be tank mixed with Mad Dog Plus. Use 2.5 to 5.0 litres per hectare Mad Dog Plus and 0.45 - 0.60 litre per hectare of Venture L Herbicide.

The higher rate of Venture L Herbicide may be required when there are high populations of volunteer Roundup Ready corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 200 litres per hectare of clean water.

Mixing: Add and mix Venture L Herbicide as per instructions on the Venture L Herbicide label and then add Mad Dog Plus as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliate leaf stage through third trifoliate leaf stage and when the volunteer glyphosate tolerant corn is at the 2- to 5-leaf stage.

A PHI (preharvest interval) of 90 days is required for the tank-mix of Mad Dog Plus and Venture L Herbicide on glyphosate tolerant soybeans ie. Roundup Ready2 Yield and Roundup Ready Soybeans.

Refer to the Venture L Herbicide label for further safety precautions and handling instructions.

FirstRate is a trademark of Dow AgroSciences LLC.

Pursuit is a registered trademark of BASF.

Sencor is a registered trademark of Bayer.

Assure and Classic are registered trademarks of E.I. duPont de Nemours and Company.

Venture is a registered trademark of a Syngenta group company.

7.7 WEED CONTROL IN GLYPHOSATE TOLERANT CORN I.E., VARIETIES WITH THE ROUNDUP READY GENE

WARNING: APPLY MAD DOG PLUS ON GLYPHOSATE TOLERANT CORN VARIETIES ONLY; I.E., VARIETIES WITH THE ROUNDUP READY GENE.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) CORN SEED DESIGNATED AS GLYPHOSATE TOLERANT. CORN WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (use 100-200 L/ha water volumes)
2.5	Up to and including 8 leaf stage	Velvetleaf, common ragweed, common lamb's-quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth,	<p>¹A single application of 2.5 L/ha will provide suppression only.</p> <p>²For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be at least 2 weeks after the first application.</p> <ul style="list-style-type: none"> • A second 2.5 L/ha application will improve control in heavy

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (use 100-200 L/ha water volumes)
		<p>large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, wild mustard, Russian thistle, non-glyphosate tolerant canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night-flowering catchfly, stork's-bill, flixweed, narrow-leaved hawk's-beard</p> <p>common milkweed^{1,2}, yellow nutsedge^{1,2}, round-leaved mallow², field bindweed², perennial sow thistle, Canada thistle, wire-stemmed muhly</p>	<p>infestations.</p> <ul style="list-style-type: none"> • A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application must be applied no later than the 8 leaf stage of the corn. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. • Wire-stemmed muhly should be 10-20 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment.
5.0	Up to and including 6 leaf stage	All weeds listed above	<ul style="list-style-type: none"> • Only one application per season at 5.0 L/ha. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (use 100-200 L/ha water volumes)
			growing. Plants not fully emerged at the time of application will escape treatment.

♦Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25cm in height will be inconsistent, although some weeds may be controlled.

7.7.1 TANK MIXTURES

For tank mixtures, add herbicide according to instructions on the product label, and then add Mad Dog Plus according to instructions on this label (section 5). Refer to the tank mix herbicide labels for further safety precautions, use recommendations and product handling instructions.

DO NOT APPLY BY AIR

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100-200 L/ha water volumes)
2.5 L/ha Mad Dog Plus + 0.75 – 1.0 kg ai/ha atrazine*	Up to and including the 5-leaf stage.	Residual control of lamb's-quarters, redroot pigweed, common ragweed.	Tank-mix should be used when only a single application timing is desired. Use the higher rate of atrazine for heavier weed infestations.
2.5 L/ha Mad Dog Plus + 2.5 – 3.7 L/ha Marksman Herbicide	Up to and including the 5-leaf stage.	Residual control of lamb's-quarters, redroot pigweed, common ragweed, velvetleaf.	Tank-mix should be used when only a single application timing is desired. Use the higher rate of Marksman for heavier weed infestations.

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100-200 L/ha water volumes)
2.5 L/ha Mad Dog Plus + 0.56 – 1.12 L/ha 2,4-D Herbicide**	Before the corn is 15 cm tall (leaf extended) and/or before the 6 leaf stage.	Volunteer Roundup Ready canola – up to the 4 leaf stage.	Tank mix is most effective when treating small (4 leaf or less) canola plants.
Two applications: First application: 2.5 L/ha Mad Dog Plus + 0.56 L/ha 2,4-D Herbicide** Second application: 2.5 L/ha Mad Dog Plus + 0.42-0.56 L/ha 2,4-D Herbicide**	Before the corn is 15 cm tall (leaf extended) and/or before the 6 leaf stage.	Volunteer Roundup Ready canola – up to the 4 leaf stage.	Tank mix is most effective when treating small (4 leaf or less) canola plants.
2.5 L/ha Mad Dog Plus + 13.3 g/ha Peak 75WG Herbicide + 0.3 L/ha Banvel II Herbicide + non ionic surfactant (0.2% v/v)	Spike up to and including the 5 leaf stage.	Volunteer Roundup Ready canola – up to the 4 leaf stage.	Tank mix is most effective when treating small (4 leaf or less) canola plants.
2.5 L/ha Mad Dog Plus + 1.1 L/ha Dyvel DSP Liquid Herbicide	Before the corn is 15 cm tall (leaf extended)	Volunteer Roundup Ready canola – up to the 4 leaf stage.	Tank mix is most effective when treating small (4 leaf or less) canola plants.
2.5 L/ha Mad Dog Plus + 0.21 L/ha Callisto® 480SC	3-8 leaf stage of corn	Eastern black nightshade, velvetleaf, redroot pigweed, common	Add Agral 90 at 0.2% v/v Apply up to the 8

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100-200 L/ha water volumes)
Herbicide		ragweed (suppression only) plus emerged annual and perennial weeds	leaf stage of broadleaf weeds Some perennial weeds may not be controlled with these rates.
2.5 L/ha Mad Dog Plus + 0.21 L/ha Callisto 480SC Herbicide + 0.58 L/ha Aatrex Liquid 480 Herbicide	3-8 leaf stage of corn	Eastern black nightshade, velvetleaf, redroot pigweed, common ragweed plus emerged annual and perennial weeds	Add Agral 90 at 0.2% v/v Apply up to the 8 leaf stage of broadleaf weeds Some perennial weeds may not be controlled with these rates
2.5 L/ha Mad Dog Plus + 2.5 L/ha Primextra® II Magnum® Herbicide	Apply up to and including 6 leaf stage of corn	Annual grasses and broadleaf weeds, emerged annual or perennial weeds	This tank mix requires the use of a surfactant. AGRAL 90 or Ag-Surf may be used. Do NOT apply this tank-mix to soils with less than 1% or more than 10% organic matter.
2.5 L/ha Mad Dog Plus + 0.625 L/ha Banvel II Herbicide	Spike to 5 leaf	Weeds controlled by Mad Dog Plus plus improved control of Velvetleaf and extended control of late germinating, deep rooted annuals on the Banvel II Herbicide label.	
2.5 L/ha Mad Dog Plus + 285 g/ha	2 to 6 leaf	Weeds controlled by Mad Dog Plus plus extended control of late emerging weeds	Non-ionic surfactant applied at 0.2% v/v 28% UAN applied

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100-200 L/ha water volumes)
Distinct Herbicide + Non ionic surfactant + 28% UAN		listed on the Distinct Herbicide label.	at 1.25% v/v
2.5 L/ha Mad Dog Plus + 1.25 L/ha Dual II Magnum Herbicide + 1.0 kg ai/ha atrazine*	Spike to 6 leaf	Weeds controlled by Mad Dog Plus plus extended control of annual grass and broadleaf weeds on the tank mix partner labels.	
2.5 L/ha Mad Dog Plus + 1.1 L/ha Frontier Herbicide + 1.0 kg ai/ha atrazine*	Emergence to 3 leaf	Weeds controlled by Mad Dog Plus plus extended control of annual grass and broadleaf weeds on the tank mix partner labels.	
2.5 L/ha Mad Dog Plus + 4.2 L/ha Prowl 400EC Herbicide + 1.0 kg ai/ha atrazine*	Up to and including the 4 leaf stage of corn	Weeds controlled by Mad Dog Plus plus extended control of annual grass and broadleaf weeds on the tank mix partner labels.	
2.5 L/ha Mad Dog Plus + 0.21 L/ha Callisto 480SC Herbicide + Non ionic surfactant	3 to 8 leaf stage of corn	Weeds controlled by Mad Dog Plus plus extended control of eastern black nightshade, velvetleaf, redroot pigweed, and common ragweed.	Add non ionic surfactant at 0.2% v/v
2.5 L/ha Mad Dog Plus + 2.5 - 3.0 L/ha Primextra II	Spike to 6 leaf stage of corn	Weeds controlled by Mad Dog Plus plus extended control of annual grass and broadleaf weeds on	

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED ♦	COMMENTS (Use 100-200 L/ha water volumes)
Magnum Herbicide		the Primextra II Magnum label.	

* 0.75 to 1.0 kilogram active ingredient atrazine per hectare is equivalent to 1.56 to 2.08 litres per hectare of Aatrex Liquid 480™.

** 500 g ai/litre of 2,4-D formulation. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D. Some corn hybrids may be injured by an application of 2,4-D. It is recommended that the corn seed provider be contacted regarding the tolerance of the corn hybrid to be treated, to 2,4-D prior to application of this tank mix.

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

Aatrex and Peak are registered trademarks of a Syngenta group company. Marksman, Banvel II and Dyvel DS are registered trademarks of BASF Corporation.

7.8 WEED CONTROL IN GLYPHOSATE TOLERANT SWEET CORN ie. VARIETIES WITH ROUNDUP READY 2 TECHNOLOGY

WARNING: APPLY MAD DOG PLUS ON ONLY SWEET CORN VARIETIES THAT ARE DESIGNATED AS GLYPHOSATE TOLERANT IE. CONTAINING ROUNDUP READY 2 TECHNOLOGY (SUCH AS CONTAINS A ROUNDUP READY GENE).

NOTE: SWEET CORN VARIETIES CONTAINING ROUNDUP READY 2 TECHNOLOGY ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN MAD DOG PLUS. ALWAYS USE PEDIGREED (I.E. CERTIFIED) SWEET CORN SEED DESIGNATED AS CONTAINING GLYPHOSATE TOLERANT GENES SUCH AS ROUNDUP READY 2 TECHNOLOGY. SWEET CORN WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT MAY BE DAMAGED OR DESTROYED BY THIS TREATMENT.

WEED CONTROL:

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED ♦	COMMENTS (use 100-200 L/ha water volumes)
2.5	Up to and	See Weeds Controlled in	• See Comments in Section 7.7

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED ♦	COMMENTS (use 100-200 L/ha water volumes)
	including 8 leaf stage	Section 7.7 Table	Table <ul style="list-style-type: none"> • A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application must be applied no later than the 8 leaf stage of the corn.
5.0	Up to and including 6 leaf stage	See Weeds Controlled in Section 7.7 Table	<ul style="list-style-type: none"> • See Comments in Section 7.7 Table • Only one application per season at 5.0 L/ha.

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

♦ Plants not fully emerged at the time of application will escape treatment.

TANK MIXES - Do not apply Tank Mixes to glyphosate tolerant sweet corn varieties such as Roundup Ready 2 Technology

Allow a minimum of 30 days between application of this product and harvest.

DO NOT APPLY BY AIR

8.0 PERENNIAL WEED CONTROL

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

DO NOT APPLY BY AIR.

When applied as recommended under the conditions described, this product will control the perennial weeds listed in the following table.

8.1 PERENNIAL WEED CONTROL WITH MAD DOG PLUS

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Quackgrass (control, light to moderate infestations)	3 to 4 green leaves or more	2.5	50 - 300	<ul style="list-style-type: none"> • Dilute in clean water using flat fan nozzles. • Allow 3 or more days after treatment before tillage. • Refer to “Quackgrass” notes in section 8.2.1 for more information. • For higher water volumes (i.e., 150 – 300 L/ha) an approved surfactant must be added at 0.5 L per 100 L of clean water (0.5% v/v). Refer to list in section 8.2.2. See also below.
Quackgrass (long term control, heavy infestations, high water volumes)	3 to 4 green leaves or more	2.5 – 7.0	50 - 300	<ul style="list-style-type: none"> • Allow 3 or more days after treatment before tillage. • Rates higher than 2.5 L/ha will provide more consistent, longer term control, especially with heavier infestations and/or higher water volumes (i.e., 150 – 300 L/ha). • Refer to “Quackgrass” notes in section 8.2.1 for more information.
Canada Thistle	Rosette stage (summerfallow)	2.5	50 - 100	<ul style="list-style-type: none"> • Dilute in clean water using flat fan nozzles. • Allow 10 or more days after treatment before tillage. • Refer to “Canada Thistle” notes in section 8.2.3 for more information.
Canada Thistle	Bud stage or beyond	4.75 – 7.0	100 - 300	<ul style="list-style-type: none"> • Allow 5 or more days after treatment before tillage.
Field Bindweed	Full bloom or beyond	7 - 12	100 - 300	<ul style="list-style-type: none"> • Allow 7 or more days after treatment before tillage.

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Common Milkweed*	Bud to full bloom (preharvest)	2.5	50 – 100	<ul style="list-style-type: none"> • See “Preharvest Treatment” (section 9.9) for more information. • Allow 7 or more days after treatment before tillage. • Reduced control may occur after full bloom. • Milkweed may not all be in the correct stage, therefore, repeat treatments may be required.
	Bud to full bloom	12	100 - 300	
Toadflax	Vegetative Stage (summerfallow)	2.5	50 - 100	<ul style="list-style-type: none"> • Dilute in clean water using flat fan nozzles. • Allow 7 or more days after treatment before tillage in summerfallow. • For more information, see “Toad Flax Control” (section 8.2.4), or “Preharvest Treatment” (Section 9.9).
	Bud to full bloom (preharvest)			
Alfalfa	Early bud to full bloom stage	3.7 – 5.0	50 - 300	<ul style="list-style-type: none"> • Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. • For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see section 8.2.6.
	Fall applications only			

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Dandelion	< 15 cm	2.5	50 – 100	<ul style="list-style-type: none"> • Allow 3 or more days after treatment before tillage for all rates. • Use the higher rate when infestations are heavy. • Refer to “Dandelion” notes in section 8.2.5 for more information. • Allow 7 or more days after treatment before tillage. For more information, see “Preharvest Treatment” (section 9.9).
	> 15 cm	3.7 – 5.0	50 – 300	
	Rosette to full bloom (preharvest)	2.5	50 - 100	
Foxtail Barley	Seeding to heading	2.5 – 5.0	50 - 100	<ul style="list-style-type: none"> • Allow a minimum of 1 day after treatment before tillage or seeding. • Use higher rates for larger, more established plants, heavy infestations or if plants are stressed.
Other Perennials (see listing section 6.2)	Early heading or early bud stage	7 - 12	100 - 300	<ul style="list-style-type: none"> • Allow 7 or more days after treatment before tillage.

*NOTE: For spot treatment, mix 120 millilitres of product in 5 litres clean water per 100 m² (2.5 – 12 litres per hectare is approximately equivalent to 25 – 120 mL/100m², respectively).

8.2 SPECIAL NOTES FOR PERENNIAL WEED CONTROL

8.2.1 QUACKGRASS

For **season-long control on fall tilled ground**: Apply 2.5 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

8.2.2 SURFACTANTS

The following is a list of approved surfactants for use with Mad Dog Plus for control of quackgrass:

Agral 90	Companion
Ag Surf	Frigate®

Always refer to surfactant label for specific instructions regarding use of that product.

Frigate is a registered trademark of Syngenta group company.

8.2.3 CANADA THISTLE

Control of Canada Thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

MAD DOG PLUS PLUS BANVEL TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summerfallow or in postharvest stubble, apply 1.7 litres per hectare Mad Dog Plus plus 1.25 litres per hectare Banvel in 100 – 200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90, Ag Surf or Companion.

For best results in summerfallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

8.2.4 TOADFLAX

Control of Toadflax in a Summerfallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 10th and July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are a minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

8.2.5 DANDELION

Applications should be made up to and including bloom for best results. Follow-up

control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

8.2.6 ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 2.5 to 5.0 litres per hectare Mad Dog Plus and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 2.5 to 5.0 litres per hectare Mad Dog Plus. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14 day interval between application and planting is required.

Use the higher Mad Dog Plus rates when perennial grasses are prevalent.

8.2.7 ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to “**Perennial Weed Control with Mad Dog Plus**” (section 8.1).

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow-up tillage after application should be delayed 5 to 7 days for best results. See “**Weed Control**” tables (sections 7.1 and 8.1) for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

9.0 CROPLAND SITUATIONS

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 and 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

DO NOT APPLY BY AIR EXCEPT FOR PREHARVEST AERIAL APPLICATION (SECTION 9.9.2).

FOLLOW THE MORE RESTRICTIVE LABEL FOR THE APPLICATION OF THESE TANK MIXES.

This product can be applied as a broadcast spray or spot treatment prior to planting all crops, postharvest to annual crops, preharvest in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, soybeans, dry beans and forages, and in summerfallow. It may also be applied as a broadcast spray in glyphosate tolerant corn, soybean or canola, i.e., varieties with the Roundup Ready gene (sections 7.5, 7.6 and 7.7). It may be applied as a directed spray in orchards, vineyards, blueberries and strawberry, and using selective equipment in soy and dry beans, orchards, vineyards, cranberries and strawberry (refer to specific sections below for more information). **For specific instructions on weed control in the following cropping situations, always refer to “Annual and Perennial Weed Control” (sections 7.0 and 8.0) for more information.**

9.1 PRIOR TO PLANTING – ALL CROPS

This product may be applied prior to planting all crops for control of emerged weeds listed on this label. Ensure weeds are at the desired stage at the time of application. This product does not provide preemergent weed control and newly germinating weeds may be a problem in the crop. APPLY BEFORE SEEDING OR TRANSPLANTING.

9.1.1 PRIOR TO PLANTING – TANK MIXES* - SOYBEANS

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

Mad Dog Plus plus Pursuit Herbicide

Mad Dog Plus plus Pursuit Herbicide can be applied prior to or after seeding, but before crop emergence. Mad Dog Plus will control emerged weeds listed on this label when applied as directed (refer to Annual and Perennial Weed control sections in the Mad Dog Plus product label). Pursuit Herbicide will control weeds germinating from seed.

ONLY SOYBEANS, WHITE BEANS, KIDNEY BEANS, PROCESSING PEAS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 100 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE

Mad Dog Plus plus metribuzin (Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor Soybean Flowable Herbicide, or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds taller than 4 cm in soybeans, apply Mad Dog Plus in tank mix with Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide or Lexone DF Herbicide as a preplant surface or pre-emergence application before crop emergence.

Mad Dog Plus plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in soybeans. Apply Mad Dog Plus in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.15– 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

Perennial weeds such as quack grass may not be controlled with lower rates of Mad Dog Plus. Use higher rates of Mad Dog Plus if perennial weeds are present.

Mad Dog Plus plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus metribuzin (Sencor 75DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor Soybean Flowable Herbicide or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds in soybeans. Apply as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence. Perennial weeds such as quack grass may not be controlled with lower rates of Mad Dog Plus.

Mad Dog Plus plus Broadstrike Dual Magnum Soybean Herbicide

Broadstrike Dual Magnum Soybean Herbicide at 1.56 L/ha may be tank mixed with Mad Dog Plus at 2.6 L/ha for control of existing annual weeds and certain perennial weeds including quack grass. This tank mix may be applied preplant surface or pre-emergence in minimum till or no-till conditions. When mixing, add the Broadstrike Dual Magnum Soybean Herbicide component first.

Mad Dog Plus plus Frontier Herbicide

For burndown and residual control of selected annual weeds apply Mad Dog Plus plus Frontier Herbicide preplant surface or pre-emergence.

Mad Dog Plus plus linuron

For burndown and residual control of selected annual weeds apply Mad Dog Plus plus linuron after seeding but before crop emergence.

Mad Dog Plus plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with Mad Dog Plus. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

Mad Dog Plus plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems: Apply this tank mixture in a minimum of 200 L/ha of total volume.

9.1.2 PRIOR TO PLANTING – TANK MIXES* - CORN

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

Mad Dog Plus plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn. Apply Mad Dog Plus in tank mix with Dual Magnum or Dual II Magnum at 1.25 to 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of Mad Dog Plus. Use higher rates of Mad Dog Plus if perennial weeds are present.

Mad Dog Plus plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus atrex Liquid 480 Herbicide

For burndown and residual control of selected annual weeds in corn. Apply Mad Dog Plus in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.25 – 1.75 L/ha plus Aatrex Liquid 480 Herbicide at 2.1 - 3.1 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of Mad Dog Plus. Use higher rates of Mad Dog Plus if perennial weeds are present.

Mad Dog Plus plus Primextra II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn apply Mad Dog Plus plus Primextra II Magnum preplant surface or pre-emergence application before crop emergence. This tank mixture requires the use of a surfactant, either Agral 90 or Ag-Surf. See mixing instructions for more information.

Perennial weeds such as quack grass may not be controlled with lower rates of Mad Dog Plus. Use higher rates of Mad Dog Plus if perennial weeds are present.

Mad Dog Plus plus Fieldstar Herbicide

For burndown and residual control of selected annual weeds apply Mad Dog Plus plus Fieldstar Herbicide as a preplant surface or pre-emergence application before crop emergence.

Mad Dog Plus plus Frontier Herbicide

For burndown and residual control of selected annual weeds apply Mad Dog Plus plus Frontier Herbicide as a preplant surface or pre-emergence application before crop emergence.

Mad Dog Plus plus Prowl 400 EC herbicide

For burndown and residual control of selected annual weeds apply Mad Dog Plus plus Prowl 400 EC herbicide after seeding but before crop emergence.

Mad Dog Plus plus linuron herbicide

For burndown and residual control of selected annual weeds apply Mad Dog Plus plus linuron herbicide after seeding but before crop emergence.

Mad Dog Plus plus Converge Pro Herbicide or Converge 75 WDG Herbicide

Surface Preplant:

CONVERGE 75 WDG Herbicide can be applied to the soil surface up to 14 days prior to planting. CONVERGE 75 WDG Herbicide must be tankmixed with atrazine when applied as a surface preplant application. When weed growth is present at the time of application, Mad Dog Plus can be added to the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine treatment for burndown control of these weeds. Do not incorporate.

Preemergence:

Converge Pro Herbicide or Converge 75 WDG Herbicide can also be applied after planting to just prior to crop emergence. Atrazine and/or Mad Dog Plus can be tank mixed with pre-emergent applications of Converge Pro Herbicide or Converge 75 WDG Herbicide .

Apply Converge Pro Herbicide at 165-220 mL per hectare, or Converge 75 WDG Herbicide at 105-140 g per hectare, tankmixed with Mad Dog Plus at 2.5 litres per hectare for burndown control of emerged weeds in all tillage management systems and improved control of established dandelion in zero-tillage management systems. A three-way tankmix of Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine + Mad Dog Plus can be used to provide residual control of the weeds listed in the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine section.

Mad Dog Plus plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with Mad Dog Plus. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

Mad Dog Plus plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems:

Apply this tankmix in a minimum of 200 L/ha of total volume.

Sencor and Axiom are registered trademarks of Bayer.

Lexone is a registered trademark of E.I. duPont Canada Company.

Dual, Magnum and Primextra are registered trademarks of Syngenta group company.

Broadstrike and Fieldstar are trademarks of Dow Agrosiences LLC.

Frontier is a registered trademark of BASF Corporation.

9.2 POSTHARVEST STUBBLE TREATMENT

This product may be applied in the fall as a postharvest stubble treatment for control of perennial weeds such as quackgrass and Canada thistle. Allow weeds to regrow to the desired stage (20 to 25 centimetres tall for quackgrass and Canada thistle) before application and ensure they have a high proportion of green colouration. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frosts prior to application may decrease control.

9.3 SPOT TREATMENT (IN-CROP)

This product can be applied as an in-crop spot treatment in barley, corn, oats, soybeans, wheat, strawberry, blueberry, forage grasses and legumes including seed production. Applications should be made using the same rates and at the same growth stages as listed in the “**Weed Control**” tables (sections 7.1 and 8.1) or use a 1 percent solution for annual weeds and quackgrass and a 2 percent solution for other perennial weeds (a 1 percent solution equals 1 litre Mad Dog Plus in 100 litres of spray solution). One or two percent solutions should be applied to wet, but not run-off. Applications can be made using a boom sprayer, hose and handgun, or hand sprayer in accordance with instructions in “**Application Equipment**” (section 5.2).

9.3.1 GRAZING RESTRICTIONS

Applications can be made up to heading of small grains, initial pod set on soy and dry beans, silking of corn and emergence of seed heads. The crop in the treated area will be killed. Take care to avoid drift for the same reason. **DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS FOR MAD DOG PLUS TO TRANSLOCATE INTO ALL PLANT PARTS BEFORE GRAZING OR HARVESTING TREATED AREAS IN FORAGES.**

9.4 SUMMERFALLOW TREATMENT

This product, or labeled tank mixtures, may be applied in summerfallow to control weeds listed on this label. Ensure weeds are at the desired growth stage and actively growing at application for best results. Reduced control may result if weeds are drought stressed. Weeds will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds.

9.5 MINIMUM AND ZERO TILLAGE CROPPING SYSTEMS (ALL FIELD CROPS, INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES, CORN AND POTATOES)

This product may be applied prior to seeding or after seeding, but before crop emergence

for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Applications made too far in advance of seeding may allow weeds to emerge between application and crop emergence, as this product does not provide residual weed control.

Minimum and Zero Tillage Tank Mixtures

9.5.1 Mad Dog Plus plus 2,4-D amine or ester can be applied prior to seeding or after seeding, but before crop emergence **in wheat, winter wheat, barley and rye**. Refer to “**Annual Weed Control with Mad Dog Plus Tank Mixtures**” table for information (section 7.2).

9.5.2 Mad Dog Plus plus bromoxynil (Pardner) can be applied prior to seeding or after seeding, but before crop emergence **in wheat, barley and oats**. Refer to “**Annual Weed Control with Mad Dog Plus Tank Mixtures**” table for information (section 7.2).

9.5.3 Mad Dog Plus plus Pursuit® can be applied prior to, or after seeding, but before crop emergence in soybeans. Mad Dog Plus will control emerged weeds listed on this label when applied as directed (refer to “**Annual and Perennial Weed Control**” sections 7.0 and 8.0). Pursuit will control weeds germinating from seed. Add the recommended rates of both products in 100 litres of water per hectare, following the instructions on the Pursuit herbicide label.

ALWAYS REFER TO THE PURSUIT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS. ONLY SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 120 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE.

Pursuit is a registered trademark of BASF Agrochemical Products B.V. Netherlands.

9.5.4 Mad Dog Plus plus MCPA can be applied prior to seeding in wheat, barley, rye, oats, corn (field and sweet; MCPA amine only), flax and field peas (MCPA amine only). Refer to “**Annual Weed Control with Mad Dog Plus Tank Mixtures**” table for information (section 7.2).

9.5.5 Mad Dog Plus plus Buctril M® can be applied prior to seeding in **wheat, rye, corn, barley, oats, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, Timothy, Orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow brome grass, seedling**

streambank wheatgrass and reed canary grass. Refer to “**Annual Weed Control with Mad Dog Plus Tank Mixtures**” table for information (section 7.2).

9.5.6 Mad Dog Plus plus MCPA amine can be applied prior to seeding in **lentil and chickpea**. Refer to “**Annual Weed Control with Mad Dog Plus Tank Mixtures**” table for information (section 7.2).

9.5.7 Mad Dog Plus plus Express Toss-N-Go Herbicide Or Express Toss-N-Go® Dry Flowable 75% Herbicide in pre-seed situations, **wheat and barley** may be seeded after a minimum of 24 hours after application. Refer to “**Annual Weed Control with Mad Dog Plus Tank Mixtures**” table for information (section 7.2).

ALWAYS REFER TO THE EXPRESS® TOSS-N-GO HERBICIDE OR EXPRESS TOSS-N-GO DRY FLOWABLE 75% HERBICIDE LABEL FOR FURTHER INFORMATION ON APPLICATION DIRECTIONS, TANK MIXING, AND USE PRECAUTIONS.

9.6 FORAGES LEGUMES AND GRASSES

This product may be applied for control of emerged weeds prior to emergence of forage legumes and grasses. If the forages are to be under-seeded with a cover crop, this product must be applied prior to planting the cover crop.

9.7 PASTURE RENOVATION

Use this product to control or suppress existing vegetation for zero-tillage seeding of legumes into established sod for pasture renovation. Delay spraying until weed growth is at least 20 centimetres in height and a maximum number of seedlings or shoots have emerged. Application can be made immediately before, during or after seeding, but before crop emergence.

9.8 FORAGE SEED PRODUCTION

For spot treatment control of perennial weed problems such as quackgrass and Canada thistle in seed fields, apply as directed to vegetation that is at least 20 to 25 centimetres in height but before emergence of seed head. The crop in the treated areas will be killed. Take care to avoid drift outside target areas for the same reason.

9.9 PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX AND DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle, Mad Dog Plus can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed) (including glyphosate

tolerant varieties), flax (including low linolenic acid varieties), lentils, peas, dry beans, soybeans (including glyphosate tolerant varieties) and forages. DO NOT apply to crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.
EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

Mad Dog Plus should be applied preharvest at 2.5 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For forage crops, apply this product at 2.5 to 5.0 litres per hectare 3 to 7 days prior to the last cut before rotation or forage renovation. Consult the table “**Guidelines for Timing of Preharvest Applications**” (section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 to 14 days (or 3 to 7 days for forage applications) before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g., sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife, should be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

DO NOT APPLY BY AIR.

9.9.1 GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
		impression remains on seed.
CANOLA (including glyphosate tolerant varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (INCLUDING LOW LINOLENIC ACID VARIETIES)	Less than 30	Majority (75% - 80%) of bolls are brown.
PEAS	Less than 30	Majority (75% - 80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80% - 90% leaf drop (original leaves).
SOYBEANS (including glyphosate tolerant varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80% - 90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

9.9.2 PREHARVEST AERIAL APPLICATION

Refer to the general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION PRAIRIE PROVINCES ONLY (including PEACE RIVER REGION OF B.C.)

NOTICE TO USER – This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

NATURE OF RESTRICTION: This product is to be used only in the manner

authorized. For use only by aerial applicators and aerial application services approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

Refer to general directions and precautions concerning aerial application (section 10.2.2).

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patterning) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 – 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a ROUNDUP herbicide aerial application training course provided by Monsanto Canada Inc.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the *direct daily supervision* of a qualified pilot.

DIRECTIONS FOR USE

Mad Dog Plus may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. Mad Dog Plus can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, dry beans and soybeans. **DO NOT apply to any crops if grown for seed production.**

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

Mad Dog Plus should be applied at 2.5 L/ha in 20 – 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% of less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table “**Guidelines for Timing of Preharvest Applications**” (Section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 – 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

9.10 TREE PLANTINGS

SHELTERBELTS AND NURSERY STOCK (WOODY ORNAMENTALS)

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established nurseries or shelterbelts of the following species:

DECIDUOUS

Ash

Fraxinus spp.

Caragana

Caragana spp.

Cherry

Prunus spp.

Elm

Ulmus spp.

Lilac

Syringa spp.

Maple

Acer spp.

Mountain Ash

Sorbus spp.

Poplar

Populus spp.

Russian Olive

Elaeagnus spp.

Willow

Salix spp.

CONIFEROUS

Fir

Abies spp.

Juniper

Juniperus spp.

Pine

Pinus spp.

Spruce

Picea spp.

Yew

Taxus spp.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

9.11 TREE, VINE, BERRY AND OTHER CROPS

This product is recommended for annual and perennial weed control in established vineyards or orchards, in blueberry, cranberry and strawberry, or for site preparation prior to transplanting tree and vine crops. Applications may be made with boom equipment, shielded sprayers, hand held and high volume orchard guns, or with wiper applicator equipment (orchards, vineyards, cranberry and strawberry only). See “**Mixing and Application Equipment Information**” (section 5.2) and the following table for specific information on the use of equipment.

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual or pre-emergent weed control. For subsequent weed control, follow a program using residual herbicides or use repeated applications of this product. Do not apply more than 35 litres of this product per hectare per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES, OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

WEED CONTROL IN TREE, VINE, BERRY AND OTHER CROPS

CROP	RATE (L/ha)	PREHARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Apples, Apricot,	2.25 - 12	30	3	Annual and perennial weeds	

CROP	RATE (L/ha)	PREHARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Cherry (sweet/sour), Peaches, Pears, Plums					
Apples, Grapes	Tank Mix 2.25 – 12 + Simazine 2.0 – 4.5 kg ai/ha	-	1	Annual and perennial weeds	<ul style="list-style-type: none"> • Will provide season-long preemergent control. • Do not apply to coarse, sandy or gravelly soil. • Use according to the more restrictive label direction for each product in the mix. • DO NOT apply to orchards or vineyards that have been established less than 1 or 3 years, respectively. • Simazine rate is equivalent to 2.25 – 5.0 kg/ha Princep® Nine-T®, or 4.0 – 9.0 kg/ha Simadex®
Grapes	2.25 - 12	14	3	Annual and perennial weeds.	<ul style="list-style-type: none"> • Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. • Suckering should be conducted within 2 weeks prior to application. • Do not apply to vines which have

CROP	RATE (L/ha)	PREHARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
					been established less than 3 years.
Highbush (cultivated) blueberry	2.8 – 5.6	30	1	quackgrass	<ul style="list-style-type: none"> • Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	1 – 2% solution (spot application)	Apply in non-bearing year only	1	Woody brush (section 6.3)	<ul style="list-style-type: none"> • Apply as a directed spray in mid-summer of the vegetative (non-bearing) year. • See section 9.3 for instructions on spot treatments.
Filberts, Hazelnut (established plantations)	2.25 – 3.5	14	-	Annual Weeds	<ul style="list-style-type: none"> • Use as a directed spray, with no more than 275 kPa pressure.
Walnut, Chestnut, Japanese Heartnut	2.25 - 12	-	2	Annual and perennial weeds	<ul style="list-style-type: none"> • Apply late spring and fall, postharvest but prior to a killing frost. • Apply in 200 – 300 L water as a directed spray, using no more than 275 kPa pressure. • Apply alternatively as a 2% wiper solution (see “Wiper Applications” section 9.12).
Cranberry	20% solution (1L Mad Dog Plus + 4L water)	30	1	Annual and perennial weeds	<ul style="list-style-type: none"> • Apply using wick or wiper applicators (section 9.12).
Strawberry	1 – 2%	30	1	Emerged	<ul style="list-style-type: none"> • Apply when

CROP	RATE (L/ha)	PREHARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
	solution (spot application) 33% solution (wiper application)			perennial weeds	weeds are at a susceptible growth stage (see sections 8.1 and 8.2). • See section 9.3 for instructions on spot treatments. • See section 9.12 for instructions on wiper applications.
Sugar Beets	1 – 2% solution (spot application)	Treated crop MUST NOT be harvested	1	Dodder species	• Apply when dodder is vigorously growing but before flowering. • See section 9.3 for instructions on spot treatments.
Asparagus	1.25 – 2.5	7	1	Fall seeded rye grass	• Apply in spring before emergence of crop shoots.

Princep and Nine-T are registered trademarks of Syngenta group company.
Simadex is a registered trademark of Bayer.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: (NORTH AMERICAN GINSENG).

The DIRECTIONS FOR USE for this product for the use(s) described on this label were developed by persons other than Loveland Products Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Loveland Products Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed on this label.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Loveland Products Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described on this label.

DIRECTIONS FOR USE

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS.

NORTH AMERICAN GINSENG

New Gardens (British Columbia only): Apply this product in the fall after seeding but before freeze-up in new gardens only to control volunteer cereals. Apply when weeds are at the growth stages listed on the product label. Use a single application of 2.5 litres per hectare in 50 to 100 litres water per hectare. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

Existing/Established Gardens: Apply this product in the spring before the crop has emerged from the soil. Apply when weeds are at the growth stages described in the product label. A maximum of two 2.5 litres per hectare applications in 50 to 100 litres water per hectare may be made in a season. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

9.12 SELECTIVE EQUIPMENT

WIPER APPLICATORS

This product may be applied with a wiper applicator, after dilution and thorough mixing with water, to listed weeds in soy and dry beans, grapes, orchards, cranberries, lowbush blueberries and strawberry. Applications must be made before initial pod set in soy and dry beans. (It may also be used in any industrial, tree planting and non-crop site specified on this label. See sections 9.10 and 10.1).

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution. Wiper applicators include either roller or wick devices which physically wipe appropriate concentrations or amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Performance may be improved by reducing speed in areas of heavy weed infestations to insure adequate wiper saturation. Best results may be obtained if 2 applications are made in opposite directions.

AVOID CONTACT WITH DESIRABLE VEGETATION. Contact of the herbicide solution with desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that wiper contact point is at least 5 centimetres above the desirable vegetation. Droplets or foam of the herbicide solution settling on desirable vegetation may result in discolouration, stunting or destruction.

Applications should be made when the weeds are a minimum of 15 centimetres above the desirable vegetation. Best results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. See the “**Weed Control**” tables (sections 7.1 and 8.1) for recommended stage of growth for specific weeds.

NOTES

- **Maintain equipment in good operating condition. Avoid leakage or dripping onto desirable vegetation.**
- **Adjust height of applicator to insure proper contact with weeds.**
- **Keep wiping surfaces clean.**
- **Maintain recommended roller RPM on roller applicators while in use.**
- **Keep wiper material at proper degree of saturation with herbicide solution.**
- **DO NOT use wiper equipment when weeds are wet.**
- **DO NOT operate equipment at ground speeds below 4 and greater than 10 kilometres per hour. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to insure good coverage of weeds.**
- **Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.**
- **Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended herbicide solution directly to the weed.**
- **Care must be taken with all types of wipers to insure that the absorbent material does not become over-saturated, causing the herbicide to drip onto desirable vegetation.**
- **With all equipment, drain and clean wiper parts immediately after using this product, by thoroughly flushing with water.**

For Roller Applicators – Mix 0.5 to 1.0 litres of this product in 10 litres water to prepare a 5 to 10 percent solution. Roller speed should be maintained at 50 to 150 RPM.

For Wick or other Wiper Applicators – Mix 1 litre of this product in 2 litres of water to prepare a 33 percent solution.

10.0 NON-CROPLAND USES

INDUSTRIAL, RIGHTS-OF-WAY, RECREATIONAL, AND PUBLIC AREAS.

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

DO NOT APPLY BY AIR EXCEPT FOR RIGHTS-OF-WAY (SECTION 10.2.2).

This product can be used to control annual and perennial weeds and woody brush and trees listed on this label in non-crop areas such as railroad, pipeline, highway, power and telephone rights-of-way, petroleum tank farms and pumping installations; roadsides; storage areas; lumberyards; fence rows; industrial plant sites; parking areas; school yards, parks, golf courses, other public areas; airports and similar industrial or non-crop areas.

NOTE: For all industrial, rights-of-way, recreational and public areas, repeat treatments may be necessary to control regeneration or new growth.

When applied as recommended under the conditions described, this product will control weeds in non-cropland areas as listed in the following table.

10.1 WEED CONTROL IN NON-CROPLAND AREAS WITH MAD DOG PLUS

WEEDS	GROUND APPLICATION**			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION N % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
Annual grasses and broadleaves	2.25–3.5	50-100	1	• Actively growing weeds.
Perennial Weeds Quackgrass	2.5 4.75-7.0	50-300 50-300	1 2	• Actively growing weeds. • Add 0.5% v/v of a recommended surfactant when using water volumes greater than 150 L (see section 8.2.2).
Canada Thistle (bud stage)	4.75-7.0	100-300	2	
Purple				• Higher rate for long

WEEDS	GROUND APPLICATION**			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
Loosestrife	6.0	300-600	1-2 (or 33% for wiper application)	term control and for heavy infestations. • See section 10.2.3 for instructions on purple loosestrife applications. • Summer through fall is optimum.
Other Perennials	7.0-12	100-300	2	
Brush and Trees Birch, Cherry, Poplar, Western Snowberry, Willow	3.0-6.0	100-300	1-2	• Summer through early fall (see section 10.2).
Maple, Raspberry/Salmonberry, Alder	6.0	100-300	2	• Late summer through fall. • Fall is optimum.
Turf Renovation Annual and perennial weeds	2.5-12.0	100-300	1-2	• Use higher end of the rate range for perennials.
Roadside Vegetation (1-2m wide along shoulders) Annual weeds (refer to tank mix sections on product labels for specific weeds controlled)	1) 0.75 - 1.0 + 1.25 – 2.5 L DyCler® or 2) 0.75 – 1.0 + 0.30 L DyCler + 1.2 L	25-150	-	• Refer to “Annual Weed Control” table (section 7.1) for appropriate product rate for specific weeds. • For 2,4-D amine formulations with a different guarantee, adjust the rate accordingly. • No application to standing water.

WEEDS	GROUND APPLICATION**			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
	2,4-D amine 500			
Residual Control Annual and perennial weeds (the simazine component of this tank mixture will provide season long control of most germinating broadleaf weeds and grasses. It may also provide postemergent activity on certain annual weeds).	2.5 – 12 + 4.0 -9.0 L Simadex Flowable	200-400	-	<ul style="list-style-type: none"> • Do not apply to coarse, sandy or gravelly soil. One application per year. • Use according to the most restrictive label directions for each product in the mixture. • For other simazine formulations registered for industrial/ non-cropland areas, use equivalent rates; i.e., 2.0 – 4.5 kg simazine/ha.

* For more information on rates, water volumes and application, refer to “**Annual and Perennial Weed Control**” (sections 7.1 and 8.1, respectively).

** Aerial application may be used for brush and tree control in industrial rights-of-way only. See “**Aerial Applications**” (section 10.2.2).

DyCleer is a registered trademark of Syngenta group company.
Simadex is a registered trademark of Bayer.

10.2 APPLICATION INFORMATION FOR NON-CROPLAND USES

FOLIAR APPLICATIONS

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may

occur. For woody brush and trees, early season applications may take 30 to 45 days for symptoms to develop on target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURF GRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

This product does not provide residual weed control. For subsequent weed control, follow a label approved herbicide program. Read and carefully observe the precautionary statements and all other information appearing on the labels of all herbicides used.

**10.2.1 GROUND APPLICATIONS:
For all non-cropland uses**

For woody brush and trees, apply 3 to 6 litres of this product per hectare. Use ground boom or boomless, or mist blower equipment, or apply as a 1 to 2 percent solution using hand held, high volume equipment. Apply as directed in the recommended volume of clean water to foliage of actively growing vegetation. Use the 6 litres per hectare rate for Maple, Alder and Willow* species, as well as for hard to control perennial weed species. (*suppression only).

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages.

10.2.2 AERIAL APPLICATIONS: For industrial rights-of-way only

Refer to general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific application instructions in this section.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume 30-100 litres per hectare.

For woody brush and trees, apply 3 to 6 litres of this product per hectare. Use the 6 litres per hectare rate for Maple, Alder and Willow* species, as well as for hard to control perennial weed species. Use the recommended rates of this herbicide in 30 to 100 litres of water per hectare. As density of vegetation increases, spray volume should be increased within the recommended range to ensure complete coverage. (*suppression only).

10.2.3 PURPLE LOOSESTRIFE CONTROL

- DO NOT TREAT PLANTS OVER OPEN WATER. Mad Dog Plus is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using hand held equipment, spray-to-wet.
- For wiper applications see section 9.12.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

10.3 SELECTIVE EQUIPMENT FOR ALL NON-CROPLAND USES

Selective equipment such as WIPER and ROLLER applicators can be used to control emerged weeds in non-crop areas and tree plantings. See “**Selective Equipment**” (section 9.12) for more information.

10.4 TURFGRASS

When applied as directed, under conditions described, this product controls most existing vegetation. Apply this product at rates specified in “**Weed Control in Non-Cropland Areas**” (section 10.1).

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth given in “**Weed Control**” (sections 7.1 and 8.1). Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray and proper translocation into underground plant parts. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

For maximum control of existing vegetation, delay establishment to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. Desirable turfgrass may be established following the above procedures.

10.5 INJECTION APPLICATIONS -- FOR ALL NON-CROPLAND USES

Woody vegetation may be controlled by injection application of this product. Apply using suitable equipment, which must penetrate into living tissue, at a rate of at least 0.5 millilitres (either undiluted or 1:1 with water) per 5 centimetres tree diameter at breast height (DBH). The cuts should be spaced evenly around the tree and below all major branches. Application may be made at any time of year, except when cold temperatures prevent adequate penetration of injection equipment, or in the spring during periods of heavy sap flow. Control of tree species with tree diameters greater than 20 centimetres may not be acceptable at this rate.

Total control may not be evident for 1 to 2 years following treatment.

A partial list of species controlled includes:

Alder

Alnus spp.

Birch

Betula spp.

Cedar

Thuja spp.

Cherry

Prunus spp.

Douglas Fir

Pseudotsuga spp.

Hemlock

Tsuga spp.

Maple*

Acer spp.

Pine

Pinus spp.

Poplar

Populus spp.

Willow

Salix spp.

* This treatment may only provide suppression of Bigleaf Maple. Late fall applications will provide optimum suppression of Bigleaf Maple.

10.6 CUT STUMP APPLICATION

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Because the treatment uses a concentrated solution, application must be made using low-pressure equipment e.g., squirt bottle or similar device. This product must be applied immediately to the surface of the freshly cut stump i.e., within 5 minutes for optimum control at the prescribed rates. Only the cambial tissues of the cut surface should be treated. Apply the herbicide solution at a rate equivalent to at least 0.5 millilitres product for every 5 centimetres DBH. Do not cover the remaining area nor any exposed roots, as this product does not penetrate bark well. This treatment may be used at any time of year, except during periods of heavy sap flow or when low temperatures prevent solution application due to freezing. A water soluble colourant may be added to the solution as a means of indicating which surfaces have been treated. Total control may not be evident until 1 to 2 years after treatment.

See "**Injection Applications**" (section 10.5) of this label for a partial list of species controlled.

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GROUP	4	HERBICIDE
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MasterLine® Quinclorac

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass and suppression of annual and perennial sow-thistle in spring and durum wheat, spring barley, canary seed, canola, Clearfield canola quality *Brassica juncea*, and tame mustard (brown and oriental).

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

COMMERCIAL (AGRICULTURAL)

Dry Flowable

GUARANTEE: Quinclorac 75% DF

REGISTRATION NO. 31753 PEST CONTROL PRODUCTS ACT

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT,
CALL COLLECT DAY OR NIGHT 1-613-966-6666**

**CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Univar Canada Ltd.
9800 Van Horne Way
Richmond, B.C. V6X 1W5
(844)-963-8967
(844) 9-NETWORK

NET CONTENTS: 1.0 kg – 10 kg

GENERAL INFORMATION

MASTERLINE QUINCLORAC Herbicide is a dry flowable herbicide for selective post-emergence control of green foxtail (including Group 1 and Group 3 resistant biotypes), volunteer flax, cleavers, and barnyard grass in hard red spring, Canadian prairie spring, durum, Canada Western extra strong wheats, spring barley and canary seed, canola (*Brassica napus* – all varieties, including conventional, Clearfield®, LibertyLink® and Roundup Ready®), Clearfield canola quality *Brassica juncea* (e.g. canola quality *Brassica juncea* varieties with the Clearfield trait) and brown and oriental tame mustard.

MASTERLINE QUINCLORAC Herbicide is a herbicide with mainly systemic action. Uptake into the plant occurs through both the foliage and root system. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in inconsistent control of weeds growing underneath.

Visual symptoms of weed control of **MASTERLINE QUINCLORAC Herbicide** may take up to two weeks following application to develop. These symptoms include initial twisting to stunting, reddening and chlorosis about 14 days followed by necrosis and death about 21 days after application. Even though **MASTERLINE QUINCLORAC Herbicide** symptoms may take some time to develop, competition from the weeds treated with **MASTERLINE QUINCLORAC Herbicide** is eliminated soon after application.

DIRECTIONS FOR USE

Application Rate and Timing for Wheat, Spring Barley and Canary Seed

DO NOT APPLY BY AIR.

Apply **MASTERLINE QUINCLORAC Herbicide** at 135-165 g/ha when weeds are small and actively growing. **MASTERLINE QUINCLORAC Herbicide** will control the weeds at the timing detailed in **Table 1**. **MASTERLINE QUINCLORAC Herbicide** can be applied to wheat, spring barley and canary seed at the maximum application rates and timing detailed in **Table 1**.

Use the 135 g/ha rate ONLY for control of volunteer flax, barnyard grass, cleavers, lighter infestations of green foxtail and *suppression of annual and perennial sow-thistle*. Use the higher rate of 165 g/ha for control of heavier infestations of green foxtail. (Do not use the 165 g/ha rate on barley.) **Use only the 135 g/ha rate when applying MASTERLINE QUINCLORAC Herbicide to spring barley.**

Improved cleavers control in canola may be accomplished using a rate of 62 g/ha when tank mixed with Liberty 150 SN Herbicide at a rate of 3.33 L/ha on Liberty Link Canola, or with glyphosate products (360 g/L acid equivalent (ae) isopropylamine salt formulations or 540 g ae/L potassium salt formulations) at a rate of 667 g ae/ha on Roundup Ready Canola. All glyphosate products must be registered for post-emergent use on glyphosate tolerant canola varieties. Application should be made from the 2 to 6 leaf stage of the canola crop when cleavers are between the cotyledon to 3 whorls stage.

DO NOT apply **MASTERLINE QUINCLORAC Herbicide** to any field more often than every second year. This practise must be respected in order to avoid potential injury to future rotational crops, to minimize the potential for carryover and accumulation of soil residues, and to reduce the selection pressure which could contribute to the development of resistant biotypes.

Early treatment of weeds with **MASTERLINE QUINCLORAC Herbicide** is important to maximize crop yield potential through elimination of early weed competition. Some initial crop injury may be observed after application, but this is usually outgrown and should not affect crop yield.

Crop	Use Rate (g/ha)	Preharvest Interval (days)
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Canola ¹ , Clearfield canola quality <i>Brassica juncea</i> , and tame mustard (brown and oriental)	135	60
Wheat (spring and Durum) and canary seed	135-165	77
Spring barley	135	80

¹ *Brassica napus* – all varieties, including conventional, **Clearfield**, LibertyLink and Roundup Ready.

TABLE 1: WEED AND CROP APPLICATION TIMING TABLE

WEED	TRUE LEAF RANGE
Green foxtail	1 - 5 leaf (max 2 tillers)
Volunteer flax	1 - 8 cm.
Cleavers	1 - 3 whorls
Barnyard grass	1 - 5 leaf
Annual sow- thistle*	2 – 6 leaf
Perennial sow-thistle*	2 – 6 leaf
CROP	
Spring barley*	1 – 4 leaf (prior to tillering)
Wheat (spring and durum)	1 - 5 leaf
Canola ¹	2 – 6 leaf
Canary seed***	3 – 5 leaf
Clearfield canola quality <i>Brassica juncea</i>	2 – 6 leaf
Brown and oriental tame mustard	2 – 6 leaf
¹	

*Suppression only.

Maximum rate for barley is 135 g/ha. To avoid crop injury apply **MASTERLINE QUINCLORAC Herbicide before spring barley tillers.

***Not to be used for human consumption or fed to livestock.

¹*Brassica napus* – all varieties, including conventional, Clearfield, Liberty Link and Roundup Ready

SPRAYING INSTRUCTIONS

Ground Application

Use sprayers equipped with standard flat fan pesticide nozzles with a spray volume of 100 L/ha at a constant pressure of 275-425 kPa. Tilt spray nozzles 45 degrees forward to ensure better coverage. The use of 50 mesh strainers and screens is recommended.

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Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) fine classification. Boom height must be 60 cm or less above the crop or ground.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats.

Buffer Zones for the Protection of Terrestrial Habitats from Spray Drift of Quinclorac

Method of application	Crop	Application Rate g product/ha	Buffer Zones (metres) Required for the Protection of Terrestrial Habitats
Field sprayer	Wheat, canary seed	165	4
	Canola, barley, wheat, canary seed	135	3
	Wheat, barley, canola, lentils, peas, sunflower, oats, flax	87 - 99.5	2

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

ADDITIVES

Always use **MERGE** adjuvant at 1.0% v/v for optimum performance of **MASTERLINE QUINCLORAC Herbicide**.

TANK MIX COMBINATIONS (BARLEY, WHEAT AND CANARY SEED APPLICATIONS ONLY)

For the appropriate rate of **MASTERLINE QUINCLORAC Herbicide**, refer to the Application Rate and Timing section of the label.

Broadleaf Weed Control

Although **MASTERLINE QUINCLORAC Herbicide** provides control of several broadleaf weeds, a tank mix with a broadleaf compound is required to give broad spectrum broadleaf weed control in wheat.

For additional control of broadleaf weeds in barley and wheat, **MASTERLINE QUINCLORAC Herbicide** can be tank mixed with any of the broadleaf herbicides listed in **Table 2**. When tank mixing **MASTERLINE QUINCLORAC Herbicide** with these broadleaf herbicides, a slight reduction in control of green foxtail may be observed. The level of green foxtail control may be improved by using the 165 g/ha rate of **MASTERLINE QUINCLORAC Herbicide** in the tank mixture for wheat only

Refer to Table 2 for appropriate use rates and timing of crop applications. Always refer to the labels of all tank mix partners and observe the most restrictive application directions, restrictions, precautions and personal protective equipment of all tank mix partners.

Wild Oat Control

For control of wild oats when populations are between 1-200 plants per square metre and certain broadleaf weeds, **MASTERLINE QUINCLORAC Herbicide** can be tank mixed with **AVENGE 200-C** herbicide at the rate of 3.5 L/ha and one of the broadleaf herbicides as listed in **Table 2**. USE ONLY ON SPRING WHEAT VARIETIES LISTED ON THE **AVENGE 200-C** HERBICIDE LABEL.

AVENGE 200-C herbicide can cause some crop injury. Refer to the Table 2 for appropriate use rates and timing of crop application. Refer to the labels of all tank mix partners (e.g., AVENGE 200-C herbicide and the broadleaf herbicide) and observe the most restrictive application directions, restrictions, precautions and personal protective equipment of all tank mix partners.

TABLE 2: TANK MIX OPTIONS FOR MASTERLINE QUINCLORAC HERBICIDE ON BARLEY, WHEAT, AND CANARY SEED

Crop	MasterLine Quinclorac Rate (g/ha)	Tank Mix Partner	Rate	Crop Stage	Weeds Controlled
Barley	135	MCPA Amine (assume 500 Series)	1.1 L/ha	3-4 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1 Broadleaf weeds listed on MCPA Amine label.
		MCPA Ester	1.1 L/ha	3-4 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1 Broadleaf weeds listed on MCPA Ester label.
		Buctril M	1.0 L/ha	2-4 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1 Broadleaf weeds listed on Buctril M label.
		Refine Extra	20 g/ha	2-4 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1 Broadleaf weeds listed on Refine Extra label.
Wheat (spring and durum)	135-165	Buctril M	1.0 L/ha	2-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Broadleaf weeds listed on Buctril M label.
		2,4-D Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Broadleaf weeds listed on 2,4-D Amine label.
		2,4-D Ester (assume 500 series)	0.840-1.1 L/ha	4-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Broadleaf weeds listed on 2,4-D Ester label.
		MCPA Amine (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Broadleaf weeds listed on MCPA Amine label.
		MCPA Ester (assume 500 series)	0.840-1.1 L/ha	3-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Broadleaf weeds listed on MCPA Ester label.
		Refine Extra¹	20 g/ha	2-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Broadleaf weeds listed on Refine Extra label.
		Express Pack¹ (Express + 2,4-D)	10 g/ha + 0.625 L/ha	3-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Broadleaf weeds listed on Express Pack label.
Wheat (spring only)	135-165	Avenge 200-C	3.5 L/ha	1-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Wild oats as listed on Avenge 200-C label.

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Avenge 200-C + Buctril M	3.5 L/ha + 1.0 L/ha	2-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Broadleaf weeds listed on Buctril M label. Wild oats as listed on Avenge 200-C label.
Avenge 200-C + 2,4-D Ester (assume 500 series)	3.5 L/ha + 0.840-1.1 L/ha	4-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Broadleaf weeds listed on 2,4-D Ester label. Wild oats as listed on Avenge 200-C label.
Avenge 200-C + MCPA Ester (assume 500 series)	3.5 L/ha + 0.840-1.1 L/ha	3-5 leaf	MASTERLINE QUINCLORAC Herbicide - see Table 1. Broadleaf weeds listed on MCPA Ester label. Wild oats as listed on Avenge 200-C label.
Avenge 200-C + Refine Extra¹	3.5 L/ha + 20 g/ha	2-5 leaf	MASTERLINE QUINCLORAC Herbicide -see Table 1. Broadleaf weeds listed on Refine Extra label. Wild oats as listed on Avenge 200-C label.

Canary seed ²	135	Buctril M	1.0 L/ha	3-5 leaf	MASTERLINE QUINCLORAC Herbicide -see Table 1. Broadleaf weeds listed on Buctril M label.
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¹ Addition of surfactants other than Merge adjuvant is not required

² Avoid over application.

Do not delay spraying broadleaf weeds if grassy weeds are not in the correct stage for treatment. If green foxtail, wild oats and broadleaf weeds are not in the correct stages for treatment, apply separate applications of each herbicide timed to control the required spectrum of weeds. Use **MERGE** adjuvant only with all tank mixtures.

RECROPPING

Due to the residual activity of **MASTERLINE QUINCLORAC Herbicide** in the soil, land treated with **MASTERLINE QUINCLORAC Herbicide** cannot be rotated to crops other than specified in **Table 3**. To avoid injury to rotational crops, the minimum recropping intervals in **Table 3** must be followed.

TABLE 3: MINIMUM RECROPPING INTERVALS

CROP	MINIMUM RECROPPING INTERVAL (Months)	NOTES
Wheat* (spring, durum) Spring barley*	0	These crops can be re-planted in the same season as MASTERLINE QUINCLORAC Herbicide applications.
	0	
Field peas Sunflowers	10 10	These crops and the crops listed above can be planted the year following application of MASTERLINE QUINCLORAC Herbicide .
Oats	12	These crops and the crops listed above can be planted the year following application of MASTERLINE QUINCLORAC Herbicide .
Flax Lentils	10 10	These crops and the crops listed above can be planted two years following application of MASTERLINE QUINCLORAC Herbicide .

*In the event of crop failure, only spring or durum wheat or spring barley may be reseeded in fields treated with **MASTERLINE QUINCLORAC Herbicide**.

MASTERLINE QUINCLORAC Herbicide should not be used on land where potatoes or vegetables are part of the rotation.

The company recommends that a field bioassay (a test strip grown to maturity) be conducted the year before growing any crops other than those listed in **Table 3**.

On lighter soils with low organic matter or under dry conditions, some crop injury may occur particularly in flax and lentils but will not reduce yield. Under these conditions, the minimum recropping interval for flax and lentils should be extended by 12 months.

Refer to the broadleaf or AVENGE 200-C herbicide label for specific additional recropping

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restrictions.

RESTRICTIONS AND LIMITATIONS

1. Do not apply **MASTERLINE QUINCLORAC Herbicide** when weather conditions may cause spray drift from treated areas to adjacent crops. Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes and vegetables will be injured by spray drift of **MASTERLINE QUINCLORAC Herbicide**.
- 2.
2. Do not apply **MASTERLINE QUINCLORAC Herbicide** to wheat, spring barley and canary seed under seeded to forages.
3. Do not apply **MASTERLINE QUINCLORAC Herbicide** to wheat, spring barley, canary seed, canola, Clearfield canola quality *Brassica juncea* or tame mustard that has been subjected to stress from conditions such as frost, hail damage, flooding, drought, extended cold period, etc.
4. Rainfall within 6 hours after application may reduce effectiveness of spray.
5. When **MASTERLINE QUINCLORAC Herbicide** is applied beyond the recommended growth stages, limited crop injury and/or unsatisfactory weed control may result.
6. Cool weather conditions or drought will delay **herbicide** activity and if prolonged, may result in poor weed control.
7. Do not use **MASTERLINE QUINCLORAC Herbicide** with additives, pesticides or fertilizers not specifically recommended on this label.
8. Allow 4 days between application of **MASTERLINE QUINCLORAC Herbicide** and any other chemical not recommended as a tank mix combination on this label.
9. **MASTERLINE QUINCLORAC Herbicide** must not be applied within 77 days of harvest of canary seed and wheat and within 60 days of harvest of canola and within 80 days of harvest of spring barley
10. Spring barley treated with **MASTERLINE QUINCLORAC Herbicide** is **NOT TO BE USED FOR HUMAN CONSUMPTION**.
11. **Canary seed treated with MASTERLINE QUINCLORAC Herbicide is NOT TO BE USED FOR HUMAN CONSUMPTION OR FED TO LIVESTOCK**.
12. Apply using ground equipment only. **DO NOT APPLY BY AIR**.
13. Overspray or drift into important wildlife habitats such as shelterbelts, wetlands, woodlots, vegetated ditch, ponds and lake banks and other cover on the edges of fields should be avoided. A 10-metre buffer zone should be observed adjacent to aquatic habitats such as streams, ponds, rivers and lakes and to areas that drain into these habitats. When a tank mixture is used, consult the label of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.
14. Do not graze the treated crops or cut for hay within 77 days of application.
15. Grain and meal from treated canola can be fed to livestock. **DO NOT** graze or feed other portions of the treated canola to livestock.

MIXING

1. Thoroughly clean the sprayer prior to use. For appropriate cleaning instructions, refer to the label of the product sprayed previous to application of **MASTERLINE QUINCLORAC Herbicide**.
2. Fill the clean spray tank half full with clean water. Start agitation or by-pass system. Agitation should be running during the entire mixing procedure.
3. Add the correct amount of **MASTERLINE QUINCLORAC Herbicide** and agitate 2 to 3 minutes.
4. Add the correct amount of broadleaf herbicide, followed by **AVENGE 200-C** herbicide, if required. When mixing **MASTERLINE QUINCLORAC Herbicide** with **EXPRESS PACK**, **EXPRESS** herbicide must be completely in suspension in the spray tank prior to adding **2,4-D** herbicide.

NOTE: On repeat tank loads of either **EXPRESS PACK** or **REFINE EXTRA** herbicide, prepare an **EXPRESS**/water or **REFINE**/water slurry in a separate container with clean water before adding to the spray tank.

5. Add the correct amount of **MERGE** adjuvant and agitate 2 to 3 minutes.
6. Add remainder of water to the spray tank and maintain sufficient agitation during mixing and spraying to ensure a uniform spray mixture.
7. For sprayer clean-up, refer to the sprayer clean-up section.
8. Consult the broadleaf or **AVENGE 200-C** herbicide label for additional application instructions, use precautions and recropping information.

SPRAYER CLEAN-UP

Certain crops such as alfalfa, clover species, fababeans, flax, lentils, ornamentals, potatoes, tomatoes and vegetables are particularly sensitive to **MASTERLINE QUINCLORAC Herbicide**. To avoid injury to subsequent crops other than wheat, the sprayer should be thoroughly cleaned immediately after use and prior to spraying other crops by performing the following steps:

1. Following spray application, drain any remaining spray solution, then flush the tank, boom and hoses with clean water until any visible residues are removed. (Repeat step 1, if necessary.) **DO NOT CLEAN SPRAYER NEAR DESIRABLE VEGETATION OR NEAR WELL OR WATER SOURCE.**
2. Completely fill spray tank with clean water while adding 1 litre of household ammonia (containing 3% ammonia) per 100 litres of water or a commercially licensed tank cleaner such as **FINNISH®**. Reduce the amount of ammonia added proportionally if higher concentrations (%) of ammonia are used. Flush the solution through the boom and nozzles and then add more water to completely refill the tank. Agitate the solution for at least 15 minutes and then flush the boom and nozzles until the spray tank is empty.
3. Remove the nozzles and screens and clean separately in a bucket containing a cleaning agent and water.
4. Repeat step 2.
5. Thoroughly rinse the tank with clean water and flush the water through the boom.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **MASTERLINE QUINCLORAC Herbicide** is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to **MASTERLINE QUINCLORAC Herbicide** and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **MASTERLINE QUINCLORAC Herbicide** or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Univar Canada Ltd. at 1-844-963-8967 (844-9-NETWORK).

PRECAUTIONS

- 1 **KEEP OUT OF REACH OF CHILDREN.**
- 2 May irritate the skin. Avoid contact with the skin.
- 3 Potential Skin Sensitizer
- 4 Wash thoroughly after handling and before eating, drinking or smoking.
- 5 Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
- 6 If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
- 7 Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
- 8 Do not enter or allow worker entry into treated areas during the restricted entry interval

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(REI) of 12 hours.

- 9 Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
10. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.
11. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

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Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

- 1 Store in original, tightly-closed container.
- 2 Do not ship or store near food, feed, seed or fertilizers.
- 3 Store in cool, dry, locked, well-ventilated area without floor drain.
- 4 Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
- 5 Freezing will not harm **MASTERLINE QUINCLORAC Herbicide**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

- 1 Follow provincial instruction for any required cleaning of the container prior to its disposal.
- 2 Make the empty container unsuitable for further use.
- 3 Dispose of the container in accordance with provincial requirements.
- 4 For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

MERGE® is a registered trademark of BASF Canada Inc.

®All other products listed are registered trademarks of their respective companies.

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SLEEVE

GROUP	4	HERBICIDE
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MasterLine® Quinclorac

For selective post-emergence control of green foxtail, cleavers, volunteer flax and barnyard grass and suppression of annual and perennial sow-thistle in spring and durum wheat, spring barley and canary seed, canola, **Clearfield** canola quality *Brassica juncea*, and tame mustard (brown and oriental).

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

COMMERCIAL (AGRICULTURAL)

Dry Flowable

GUARANTEE: Quinclorac 75% DF

Warning, contains the allergen sulfites

REGISTRATION NO. 31573 PEST CONTROL PRODUCTS ACT

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL COLLECT DAY OR NIGHT
1-613-966-6666**

**CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Univar Canada Ltd.
9800 Van Horne Way
Richmond, B.C. V6X 1W5
(844)-963-8967
(844) 9-NETWORK

NET CONTENTS: 1.0 kg

PRECAUTIONS

- 1 **KEEP OUT OF REACH OF CHILDREN.**
- 2 May irritate the skin. Avoid contact with the skin.
- 3 Potential Skin Sensitizer
- 4 Wash thoroughly after handling and before eating, drinking or smoking.
- 5 Wear protective equipment and clothing, including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long-sleeved shirt, trousers and rubber boots during mixing, loading, application, clean-up and repair activities.
- 6 If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
- 7 Clean spray equipment thoroughly after use. Refer to sprayer clean-up section.
- 8 **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- 9 Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
- 10 Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
11. As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.
12. **DO NOT** apply by air.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you

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when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

TOXIC to non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

LEACHING

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of quinclorac in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

RUN-OFF

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

- 1 Store in original, tightly-closed container.
- 2 Do not ship or store near food, feed, seed or fertilizers.
- 3 Store in cool, dry, locked, well-ventilated area without floor drain.
- 4 Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.
- 5 Freezing will not harm **MASTERLINE QUINCLORAC**. Should product freeze, warm to room temperature prior to use.

DISPOSAL

- 1 Follow provincial instruction for any required cleaning of the container prior to its disposal.
- 2 Make the empty container unsuitable for further use.
- 3 Dispose of the container in accordance with provincial requirements.
- 4 For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use

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of this product.

GROUP 3 INSECTICIDE

MATADOR® 120EC
Emulsifiable Concentrate Insecticide

AGRICULTURAL

For the Control or Suppression of Labelled Insects on Labelled Crops.

ACTIVE INGREDIENT:

Lambda-cyhalothrin 120 g/L

**READ THE LABEL AND THE PAMPHLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

DANGER



POISON

**EYE IRRITANT AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

REGISTRATION NO: **24984**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **200 mL to 3.78 L**

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

Label

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IF POISONING IS SUSPECTED, IMMEDIATELY contact a doctor or a poison control centre. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

This product contains more than 80 percent petroleum distillate. Vomiting may cause aspiration pneumonia. If swallowed, perform gastric lavage, taking care to prevent aspiration of gastric contents; treat symptomatically. This product has potential for skin and eye irritation; treat symptomatically. In case of exposure to skin of face or other sensitive areas, some individuals may feel a tingling or numbness. This is a transitory effect and does not cause harm to skin.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN AND ANIMALS.** Keep unused product in original container tightly closed, locked up and away from food.
2. Fatal/poisonous if swallowed. May be fatal if inhaled. **DO NOT** breathe sprays or vapours. May be harmful if absorbed through skin. MATADOR® 120EC is corrosive to eyes and skin. Skin sensitizer. Do not get in eyes or on skin. If hands are contaminated, wash with soap and water before touching other areas of skin. Wear a long-sleeved shirt, long pants, chemical-resistant gloves and chemical-resistant boots during mixing, loading, clean-up and repair. In addition, during mixing, loading, clean-up and repair activities, workers must also wear safety goggles and a face shield, and either a respirator with a NIOSH approved organic-vapour-

removing cartridge with a prefilter approved for pesticides OR a NIOSH approved canister for pesticides. Wear a long-sleeved shirt, long pants, chemical-resistant gloves and chemical-resistant boots during application. In addition, wear chemical-resistant headgear during open cab airblast application. Chemical-resistant headgear includes Sou'Wester hat, chemical-resistant rain hat or large brimmed waterproof hat and hood with sufficient neck protection. Gloves are not required during application within a closed cab. In addition, during mechanically-pressurized handgun application, wear either a respirator with a NIOSH approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH approved canister for pesticides. When using open cab airblast or hand held equipment, applicators must also wear chemical resistant gloves. Avoid touching face with contaminated gloves or clothing. Wash gloves before removal. Wash protective equipment with soap and water after each use.

3. DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours. Workers shall be given oral warning of the re-entry interval. See Directions for use for additional REI's for specific crops.
4. MATADOR 120EC may be applied aurally only to those crops for which this use is specified on this label.
5. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

ENVIRONMENTAL HAZARDS

This product contains an active ingredient and aromatic petroleum distillates that are TOXIC to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

This product is toxic to bees when exposed to direct treatment, drift, or residues on flowering crops or weeds. **DO NOT** apply this product to flowering crops or weeds if bees are visiting the treatment area. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site. Spray deposits should be dry before bees commence foraging in treated crop.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store in a cool, well ventilated area away from foodstuffs and out of the reach of children and animals. Store above 0°C. Storage below 0°C will not impair the effectiveness of MATADOR 120EC, however, following such storage, agitate well before use.

SPILL CLEAN-UP

Wear appropriate protective equipment (gloves, glasses, apron) when attempting to clean up the spill. If the container is leaking, secure leak and place the container into a drum or heavy gauge plastic bag. Contact Syngenta Canada Inc. (See EMERGENCY NUMBER below) for further information.

For spills and leaks - contain the liquid with dikes of inert material (soil, clay, kitty litter, etc.). Absorb the spill onto inert material and shovel into a sealable waste container.

On hard surfaces - sprinkle spill area with detergent and scrub in a small quantity of water with a coarse broom. Let stand 10 minutes then absorb onto an inert material and shovel into the waste container. Dispose of all waste, including broom, in accordance with provincial requirements.

On soil - remove the top 15 cm of soil in the spill area and replace with fresh soil. Dispose of all waste in accordance with provincial requirements.

For more information on the disposal of waste and the clean-up of spills, contact the provincial regulatory agency and the manufacturer.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

CONTAINER DISPOSAL:

Recyclable Container:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- (1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- (2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

GROUP 3 INSECTICIDE

MATADOR® 120EC
Emulsifiable Concentrate Insecticide

AGRICULTURAL

For the Control or Suppression of Labelled Insects on Labelled Crops.

ACTIVE INGREDIENT:

Lambda-cyhalothrin 120 g/L

**READ THE LABEL AND THIS PAMPHLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

DANGER



POISON

**EYE IRRITANT AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

REGISTRATION NO: **24984**
PEST CONTROL PRODUCTS ACT

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

Pamphlet

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IF POISONING IS SUSPECTED, IMMEDIATELY contact a doctor or a poison control centre. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

This product contains more than 80 percent petroleum distillate. Vomiting may cause aspiration pneumonia. If swallowed, perform gastric lavage, taking care to prevent aspiration of gastric contents; treat symptomatically. This product has potential for skin and eye irritation; treat symptomatically. In case of exposure to skin of face or other sensitive areas, some individuals may feel a tingling or numbness. This is a transitory effect and does not cause harm to skin.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN AND ANIMALS.** Keep unused product in original container tightly closed, locked up and away from food.
2. Fatal/poisonous if swallowed. May be fatal if inhaled. **DO NOT** breathe sprays or vapours. May be harmful if absorbed through skin. MATADOR® 120EC is corrosive to eyes and skin. Skin sensitizer. Do not get in eyes or on skin. If hands are contaminated, wash with soap and water before touching other areas of skin. Wear a long-sleeved shirt, long pants, chemical-resistant gloves and chemical-resistant boots during mixing, loading, clean-up and repair. In addition, during mixing, loading, clean-up and repair activities, workers must also wear safety goggles and a face shield, and either a respirator with a NIOSH approved organic-vapour-

removing cartridge with a prefilter approved for pesticides OR a NIOSH approved canister for pesticides. Wear a long-sleeved shirt, long pants, chemical-resistant gloves and chemical-resistant boots during application. In addition, wear chemical-resistant headgear during open cab airblast application. Chemical-resistant headgear includes Sou'Wester hat, chemical-resistant rain hat or large brimmed waterproof hat and hood with sufficient neck protection. Gloves are not required during application within a closed cab. In addition, during mechanically-pressurized handgun application, wear either a respirator with a NIOSH approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH approved canister for pesticides. When using open cab airblast or hand held equipment, applicators must also wear chemical resistant gloves. Avoid touching face with contaminated gloves or clothing. Wash gloves before removal. Wash protective equipment with soap and water after each use.

3. DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours. Workers shall be given oral warning of the re-entry interval. See Directions for use for additional REI's for specific crops.
4. MATADOR 120EC may be applied aurally only to those crops for which this use is specified on this label.
5. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

ENVIRONMENTAL HAZARDS

This product contains an active ingredient and aromatic petroleum distillates that are TOXIC to aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

This product is toxic to bees when exposed to direct treatment, drift, or residues on flowering crops or weeds. **DO NOT** apply this product to flowering crops or weeds if bees are visiting the treatment area. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site. Spray deposits should be dry before bees commence foraging in treated crop.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store in a cool, well ventilated area away from foodstuffs and out of the reach of children and animals. Store above 0°C. Storage below 0°C will not impair the effectiveness of MATADOR 120EC, however, following such storage, agitate well before use.

SPILL CLEAN-UP

Wear appropriate protective equipment (gloves, glasses, apron) when attempting to clean up the spill. If the container is leaking, secure leak and place the container into a drum or heavy gauge plastic bag. Contact Syngenta Canada Inc. (See EMERGENCY NUMBER below) for further information.

For spills and leaks - contain the liquid with dikes of inert material (soil, clay, kitty litter, etc.). Absorb the spill onto inert material and shovel into a sealable waste container.

On hard surfaces - sprinkle spill area with detergent and scrub in a small quantity of water with a coarse broom. Let stand 10 minutes then absorb onto an inert material and shovel into the waste container. Dispose of all waste, including broom, in accordance with provincial requirements.

On soil - remove the top 15 cm of soil in the spill area and replace with fresh soil. Dispose of all waste in accordance with provincial requirements.

For more information on the disposal of waste and the clean-up of spills, contact the provincial regulatory agency and the manufacturer.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

CONTAINER DISPOSAL:

Recyclable Container:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- (1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- (2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

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CALL 1-800-327-8633 (FASTMED)***

PRODUCT INFORMATION

MATADOR 120EC is a photostable, synthetic pyrethroid insecticide. It is a fast acting stomach and contact insecticide effective against a broad spectrum of foliar pests. It has no fumigant or systemic activity. Best results will be obtained with MATADOR 120EC when applied against the early development stages of the pest as determined by regular monitoring.

DIRECTIONS FOR USE

Control of some insect species with pyrethroid insecticides decreases as temperature rises. For best results, apply MATADOR 120EC during the early morning before temperatures rise, and during the evening, past the heat of the day. Use sufficient water for thorough coverage, applied by ground sprayer.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Airblast application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. DO NOT apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

Optimum application timing for the control of specific pest species is best determined by monitoring pest development and populations. In general, MATADOR 120EC is most effective against early developmental stages of surface feeding pests and against adults of pests which deposit eggs within plant parts. Follow recommendations provided by local pest monitoring services regarding appropriate application timing for your area. Follow provincial spray calendars for optimum timing of programmed spray applications.

Repeated applications are not advised for orchards where integrated pest management programs are being followed because severe reductions in beneficial arthropods may result. If pest monitoring services recommend repeated insecticide applications, consider alternating MATADOR 120EC applications with insecticides from different classes to prevent the development of resistant pest populations. Localized populations of some insect pests (e.g., Colorado Potato Beetle, Spotted Tentiform Leafminer) have developed resistance to other synthetic pyrethroid insecticides and can be expected to quickly develop resistance to MATADOR 120EC. Consult regional extension specialists regarding the susceptibility of local populations. Follow Integrated Pest Management (IPM) techniques to minimize the need for insecticide applications and ensure that needed applications are timed for optimum effectiveness.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally

calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, clean-up and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before using this product.

For aerial applications, ensure the aircraft is equipped and calibrated to deliver a uniform spray coverage with a minimum potential for drift. To ensure uniform application, use an appropriate marking device. Apply in weather conditions that will not promote drift. Suggested conditions for good aerial application are moderate temperatures (less than 25 °C), moderate relative humidity (greater than 40%), and light winds (3 to 9 kph).

Use only medium or coarse nozzles rated as delivering droplets of volume median diameter of 300 microns or greater. Examples: 6506 flat fan, CP 0.125 deflector nozzle with a low shear deflector angle (30 degrees), D12-56 disc-core.

Apply in a spray volume of 10 to 40 litres per hectare. Use water volumes at the higher end of this range to ensure good coverage for optimum insect control and to minimize drift.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:			
			Freshwater Habitats of Depths:		Estuarine/Marine Habitats of Depths:	
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m
Field sprayer	All field crops		15	15	15	15
	Seed orchards		20	15	120	45
Airblast	All orchard fruit crops, poplar and willow, Saskatoon berries, tree nuts	Early or late growth stage	80	80	80	80
	Seed orchards	Early and late stage growth	80	80	80	80
Aerial	Potatoes, oilseed crops, cereal crops, alfalfa, unimproved pasture, summerfallow, poplar and willow	Fixed or rotary wing	100	20	100	100
	Corn	Fixed wing	225	20	800	800
		Rotary wing	250	15	800	500
	Legume vegetables	Fixed wing	600	25	800	800
Rotary wing		300	20	800	525	

For tank-mixes, consult the labels of the tank-mix partners and observe the largest (most

restrictive) buffer zone of the products involved in the tank-mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank-mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site. [Buffer zones of 120 m (field sprayer) or 800 m (aerial sprayer) CANNOT be modified.]

Clean and decontaminate protective clothing and application equipment regularly.

DIRECTIONS FOR USE

FRUIT CROPS	
CROPS	APPLES
PEST	Apple Aphid, Apple Brown Bug, Apple Leaf Midge, Codling Moth, Fruit Tree Leafroller, Oblique Banded Leafroller, Pale Apple Leafroller, Spotted Tentiform Leafminer, White Apple Leafhopper, Winter Moth
RATE (mL/ha)	83
APPLICATION METHOD	Ground application
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	Allow a 7 day interval between treatments. DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year. DO NOT APPLY BY AIR.
CROPS	APPLES
PEST	Plum Curculio, Tarnished Plant Bug, Woolly Apple Aphid
RATE (mL/ha)	104
APPLICATION METHOD	Ground application
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	Allow a 7 day interval between treatments. DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year. DO NOT APPLY BY AIR.

FRUIT CROPS	
CROPS	CHERRIES
PEST	Plum Curculio, Cherry Maggot
RATE (mL/ha)	104
APPLICATION METHOD	Ground application
APPLICATION TIMING	Plum Curculio: Shuck stage, when the fruit is the size of a pea, and 10 to 12 days later if oviposition scars are detected. Cherry Maggot: When the fruit is turning from green to pink. A second application may be required 10 days later.
NOTES	Allow a 7 day interval between treatments. DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year. DO NOT APPLY BY AIR.
CROPS	PEACHES AND NECTARINES
PEST	Green Peach Aphid, Oriental Fruit Moth, Tarnished Plant Bug
RATE (mL/ha)	104
APPLICATION METHOD	Ground application
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	Allow a 7 day interval between treatments. DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year. DO NOT APPLY BY AIR.
CROPS	PEARS
PEST	Pear Psylla (Nymphs and Adults), Codling Moth
RATE (mL/ha)	83
APPLICATION METHOD	Ground application
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	DO NOT apply within 7 days of harvest. DO NOT use more than 1 application per year. DO NOT APPLY BY AIR.

FRUIT CROPS	
CROPS	PLUMS
PEST	Plum Curculio, Mealy Plum Aphid
RATE (mL/ha)	104
APPLICATION METHOD	Ground application
APPLICATION TIMING	Plum Curculio: Shuck stage, when the fruit is the size of a pea, and 10 to 12 days later if oviposition scars are detected. Mealy Plum aphid: Control should be based on local monitoring for significant populations.
NOTES	Allow a 7 day interval between treatments. DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year. DO NOT APPLY BY AIR.
CROPS	STRAWBERRIES
PEST	Bud (Clipper) Weevil, Meadow Spittle Bug and Tarnished Plant Bug
RATE (mL/ha)	104
APPLICATION METHOD	Ground application
APPLICATION TIMING	Bud Weevil: When buds are visible in crown and again when first buds show white. Spittle Bug: When first noticed. Plant Bug: 7 to 10 days after first bloom and repeat 7 to 10 days later.
NOTES	Allow a 7 day interval between treatments. DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year. DO NOT APPLY BY AIR.
VEGETABLE CROPS	
CROPS	COLE CROPS (Broccoli, Brussels Sprouts, Cabbage, Cauliflower)
PEST	Crucifer Flea Beetle, Diamondback Moth Larvae, Imported Cabbageworm
RATE (mL/ha)	42
APPLICATION METHOD	Ground application
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	Allow a 7 day interval between treatments. DO NOT apply within 1 day of harvesting cabbage and 3 days of harvesting broccoli, Brussels sprouts or cauliflower. DO NOT use more than 3 applications per year. DO NOT APPLY BY AIR.

VEGETABLE CROPS	
CROPS	COLE CROPS (Broccoli, Brussels Sprouts, Cabbage, Cauliflower)
PEST	Cabbage Looper
RATE (mL/ha)	83
APPLICATION METHOD	Ground application
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	<p>Allow a 7 day interval between treatments.</p> <p>DO NOT apply within 1 day of harvesting cabbage and 3 days of harvesting broccoli, Brussels sprouts or cauliflower.</p> <p>DO NOT use more than 3 applications per year.</p> <p>DO NOT APPLY BY AIR.</p>
CROPS	POTATOES
PEST	Potato Flea Beetle, Potato Leafhopper, Tarnished Plant Bug, and Tuber Flea Beetle
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	When insects or damage appear. Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	<p>Allow a 7 day interval between treatments.</p> <p>Use sufficient water for thorough coverage. The maximum rate per season must not exceed 250 mL of product per hectare.</p> <p>DO NOT apply within 7 days of harvest.</p> <p>DO NOT use more than 3 applications per year if using the 83 mL per hectare rate.</p> <p>Aerial Application: DO NOT make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p> <p>Use a minimum of 100 L water for ground application.</p>

VEGETABLE CROPS	
CROPS	POTATOES
PEST	European Corn Borer
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Spray at egg hatch and no later than when the first feeding damage is seen on foliage. Reapply at 4 to 7 day intervals if monitoring indicates that it is necessary. Consult provincial guidelines and local extension experts for monitoring protocols and thresholds for treatment.
NOTES	<p>The maximum rate per season must not exceed 250 mL of product per hectare.</p> <p>Allow a 4 to 7 day interval between treatments.</p> <p>Use a minimum of 100 L water for ground application. Use sufficient water for thorough coverage.</p> <p>DO NOT apply within 7 days of harvest.</p> <p>DO NOT use more than 3 applications per year if using the 83 mL per hectare rate.</p> <p>Aerial Application: DO NOT make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p>
CROPS	POTATOES
PEST	Colorado Potato Beetle: susceptibility to pyrethroid insecticides should be confirmed using an appropriate assay.
RATE (mL/ha)	83 - 125 for ground application 83 for aerial application
APPLICATION METHOD	Ground or aerial application (see rates above)
APPLICATION TIMING	Use 125 mL per hectare rate when Colorado Potato Beetle larvae are beyond the second instar stage of development or when populations are high.
NOTES	<p>The maximum rate per season must not exceed 250 mL of product per hectare.</p> <p>Allow a 7 day interval between treatments.</p> <p>DO NOT apply within 7 days of harvest.</p> <p>DO NOT use more than 3 applications per year if using the 83 mL per hectare rate.</p> <p>DO NOT use more than 2 applications per year if using the 125 mL per hectare rate.</p> <p>Aerial Application: DO NOT make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p> <p>Use a minimum of 100 L water for ground application. Use sufficient water for thorough coverage.</p>

VEGETABLE CROPS	
CROPS	TOMATOES
PEST	Potato Flea Beetle, Potato Leafhopper, Tarnished Plant Bug, Cutworms
RATE (mL/ha)	83
APPLICATION METHOD	Ground application
APPLICATION TIMING	When insects or damage appear. Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring. Cutworms: Applications should be made under moist conditions in the evening or night when cutworm activity is highest. Do not disturb the soil surface for 5 days after treatment.
NOTES	Allow a 7 day interval between treatments. The maximum rate per season must not exceed 250 mL of product per hectare. DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year if using the 83 mL per hectare rate. DO NOT use more than 2 applications per year if using the 125 mL per hectare rate. DO NOT APPLY BY AIR.
CROPS	TOMATOES
PEST	Colorado Potato Beetle: susceptibility to pyrethroid insecticides should be confirmed using an appropriate assay.
RATE (mL/ha)	83 - 125
APPLICATION METHOD	Ground application
APPLICATION TIMING	When insects or damage appear. Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring. Colorado Potato Beetle: Use 125 mL per hectare rate when Colorado Potato Beetle larvae are beyond the second instar stage of development, or when populations are high.
NOTES	Allow a 7 day interval between treatments. The maximum rate per season must not exceed 250 mL of product per hectare. DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year if using the 83 mL per hectare rate. DO NOT use more than 2 applications per year if using the 125 mL per hectare rate. DO NOT APPLY BY AIR.

TOBACCO	
CROPS	TOBACCO Seedlings, Greenhouse
PEST	Cutworm (Darksided and White)
RATE (mL/ha)	2 mL/30 L water
APPLICATION METHOD	Ground application
APPLICATION TIMING	Cutworm activity is greatest during the late evening and night. Application of MATADOR 120EC should be timed as close as possible to insect feeding activity.
NOTES	Mix 2 mL of MATADOR 120EC in 30 L of water and apply to 200 m ² of plant bed. DO NOT APPLY BY AIR.
CROPS	FIELD TOBACCO
PEST	Cutworm (Darksided and White)
RATE (mL/ha)	2 mL/30 L water
APPLICATION METHOD	Ground application
APPLICATION TIMING	Cutworm activity is greatest during the late evening and night. Application of MATADOR 120EC should be timed as close as possible to insect feeding activity.
NOTES	Apply the recommended rate of MATADOR 120EC in 225 to 450 L of water per hectare using spray pressure of 175 to 350 kPa. DO NOT APPLY BY AIR.

CROPS	COVER CROP TREATMENT
PEST	Cutworm (Darksided and White)
RATE (mL/ha)	42
APPLICATION METHOD	Ground application
APPLICATION TIMING	When crop is 10 to 15 cm high, 4-5 days before ploughdown. Cutworm activity is greatest during the late evening and night. Application of MATADOR 120EC should be timed as close as possible to insect feeding activity.
NOTES	Apply 42 mL of MATADOR 120EC per hectare once to rye or wheat cover. Application should also be made to fence rows and to a 15 m strip into nearby cover crop. DO NOT APPLY BY AIR.

CROPS	SOIL TREATMENT
PEST	Cutworm (Darksided and White)
RATE (mL/ha)	83
APPLICATION METHOD	Ground application
APPLICATION TIMING	Apply once to the soil 5 days before transplanting. Cutworm activity is greatest during the late evening and night. Application of MATADOR 120EC should be timed as close as possible to insect feeding activity.
NOTES	DO NOT incorporate. DO NOT disturb the soil surface for at least 5 days following treatment since mixing of MATADOR 120EC with soil will reduce its effectiveness. Application should also be made to fence rows and to a 15 m strip into nearby cover crops. DO NOT APPLY BY AIR.
CROPS	POST PLANTING TREATMENT
PEST	Cutworm (Darksided and White)
RATE (mL/ha)	83
APPLICATION METHOD	Ground application
APPLICATION TIMING	At transplanting. Cutworm activity is greatest during the late evening and night. Application of MATADOR 120EC should be timed as close as possible to insect feeding activity.
NOTES	Spray in a 25 cm band over the row using 150 to 300 L of water per hectare. Under conditions of severe insect pressure, application should be made to fence rows and to a 15 m wide strip into nearby cover crops. A follow-up treatment may be necessary if there are late developing cutworms. DO NOT use more than 1 application per year. DO NOT apply within 60 days of harvest. DO NOT APPLY BY AIR.

OILSEED CROPS	
CROPS	CANOLA AND MUSTARD
PEST	Grasshopper
RATE (mL/ha)	63 - 83 for ground application 83 for aerial application
PEST	Crucifer Flea Beetle Lygus Bug Cabbage Seedpod Weevil (adults) Imported Cabbageworm Diamondback Moth Larvae Cabbage Looper Bertha Armyworm Cutworms <i>(Refer to User Requested Minor Use Label Expansion (URMULE) section for label directions regarding Swede midge (Contarinia nasturtii) control.)</i>
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Apply when the insects are at a vulnerable stage. Consult provincial guidelines and local extension experts for treatment threshold and advice. Cabbage Seedpod Weevil (adults): Apply at the bud to early flowering stage of crop development. Timing of applications should also be based on the presence of significant populations of adults, as determined by local monitoring. Application prior to adult migration into the field will not be effective. MATADOR 120EC will not control larvae developing within the pod, and must be applied prior to egg laying. Flea beetle: To prevent migration of overwintering flea beetle adults throughout the field, ground spray a 15 m strip around the field at the first sign of flea beetle feeding. Grasshopper: Apply the low rate when grasshoppers are up to the 3rd nymphal stage (up to 1 cm in length) or when insect numbers are low. Apply the high rate when grasshoppers are larger, up to but not including winged adults (up to 2.5 cm in length) or when insect numbers are high. If insect pressure is high apply as spray to a 15 m strip around the field. Avoid environmentally sensitive areas and unregistered crops. Cutworms: Applications should be made in the evening or night when cutworm activity is highest. Application at the time of cutworm emergence will ensure contact of MATADOR 120EC to the pest. Apply in sufficient water to ensure thorough coverage.
NOTES	Allow a 7 day interval between treatments (by ground application). For cabbage seedpod weevil: make only 1 application per season by either ground or aerial application equipment. DO NOT apply within 7 days of harvest. DO NOT use more than 3 applications per year. Aerial Application: DO NOT make more than 1 application of 83 mL/ha of the allowed seasonal total by air. Water Volume: <u>Ground Application:</u> Apply in 100 - 200 L of water per hectare. <u>Aerial Application:</u> Apply in 10 - 40 L of water per hectare.

OILSEED CROPS	
CROPS	FLAX
PEST	Grasshoppers
RATE (mL/ha)	63 - 83 for ground application 83 for aerial application
PEST	Cutworms
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application (see rates above)
APPLICATION TIMING	<p>Apply when the insects are at a vulnerable stage. Consult provincial guidelines and local extension experts for treatment threshold and advice.</p> <p>Grasshoppers: Apply the low rate when grasshoppers are up to the 3rd nymphal stage (up to 1 cm in length) or when insect numbers are low. Apply the high rate when grasshoppers are larger, up to but not including winged adults (up to 2.5 cm in length) or when insect numbers are high. If insect pressure is high apply a spray to a 15 m strip around the field. Avoid environmentally sensitive areas and unregistered crops.</p> <p>Cutworms: Applications should be made in the evening or night when cutworm activity is highest. Application at the time of cutworm emergence will ensure contact of MATADOR 120EC to the pest. Apply in sufficient water to ensure thorough coverage.</p>
NOTES	<p>Allow a 7 day interval between treatments.</p> <p>DO NOT apply within 7 days of harvest.</p> <p>DO NOT use more than 3 applications per year.</p> <p>Aerial Application: DO NOT make more than 1 application of 83 mL/ha of the allowed seasonal total by air.</p> <p>Water Volume:</p> <p><u>Ground Application:</u> Apply in 100 - 200 L of water per hectare.</p> <p><u>Aerial Application:</u> Apply in 10 - 40 L of water per hectare.</p>
CROPS	SUNFLOWERS
PEST	Sunflower beetle
RATE (mL/ha)	42 - 63 by ground application 83 by aerial application
APPLICATION METHOD	Ground or aerial application (see rates above)
APPLICATION TIMING	Apply when insects appear. Use the higher rate to control adults.
NOTES	<p>Allow a 7 day interval between treatments.</p> <p>DO NOT apply within 7 days of harvest.</p> <p>DO NOT use more than 3 applications per year.</p> <p>Aerial Application: DO NOT make more than 1 application of 83 mL/ha of the allowed seasonal total by air.</p>

CEREAL CROPS	
CROPS	WHEAT, BARLEY, OATS
PEST	Grasshoppers
RATE (mL/ha)	63 - 83 for ground application 83 for aerial application
APPLICATION METHOD	Ground or aerial application (see rates above)
APPLICATION TIMING	Apply the low rate when grasshoppers are up to the 3 rd nymphal stage (up to 1 cm in length) or when insect numbers are low. Apply the high rate when grasshoppers are larger, up to but not including winged adults (up to 2.5 cm in length) or when insect numbers are high. If insect pressure is high apply a spray to a 15 m strip around the field. Avoid environmentally sensitive areas and unregistered crops.
NOTES	Allow a 7 day interval between treatments. DO NOT apply within 28 days of harvest or 14 days of livestock foraging. DO NOT use more than 3 applications per year. Aerial Application: DO NOT make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.
<p>Tank-Mix with HORIZON® 240EC Herbicide: MATADOR 120EC can be tank-mixed with HORIZON 240EC Herbicide for one pass grasshopper and weed control in spring and durum wheat, if monitoring of grasshopper populations indicates application is necessary and timing is correct. Consult HORIZON 240EC Herbicide label for rates and weeds controlled. DO NOT APPLY BY AIR.</p>	
<p>Tank-Mix with ACHIEVE® Liquid Herbicide, ACHIEVE 40SC Herbicide, and Liquid ACHIEVE SC Herbicide: MATADOR 120EC can be tank mixed with ACHIEVE Liquid Herbicide, ACHIEVE 40SC Herbicide or Liquid ACHIEVE SC Herbicide for one pass grasshopper and wild oat control in spring wheat and spring barley, if monitoring of grasshopper populations indicates application is necessary and timing is correct. A reduction in control of green foxtail and yellow foxtail may be observed when MATADOR 120EC is tank mixed with ACHIEVE Liquid Herbicide, ACHIEVE 40SC Herbicide or Liquid ACHIEVE SC Herbicide. Consult ACHIEVE Liquid Herbicide, ACHIEVE 40SC Herbicide or Liquid ACHIEVE SC Herbicide labels for use instructions and rates. For ground application only. DO NOT APPLY BY AIR.</p>	
<p>Tank-Mix with QUILT® Fungicide for use on Wheat, Barley, Oats, and Corn (Field, Sweet and Seed) MATADOR 120EC can be tank-mixed with QUILT Fungicide for labeled foliar disease and insect control on wheat, barley, oats and corn (field, sweet and seed). Refer to the MATADOR 120EC and QUILT Fungicide labels for diseases and insects controlled as well as specific application instructions and precautions. Pests and crops must be at the correct stage as specified on the MATADOR 120EC and QUILT Fungicide labels. Apply in at least 100 L of water per hectare for ground application and 45 L of water per hectare for aerial application. CORN: Do not make more than two applications of this tank-mix per season. Allow 14 days between treatments. Do not apply to field corn and field corn grown for seed after brown silk. Do not apply within 30 days of harvest for forage. Do not apply to sweet corn within 14 days of harvest. This tank-mix is not registered for use on popcorn. ALL OTHER CEREAL CROPS: Do not make more than one application of this tank-mix per season. Do not apply within 45 days of harvest for grain or straw. Do not harvest wheat for forage. Do not graze or feed livestock treated forage or cut green crop for hay or silage.</p>	

CROPS	CORN (including field, pop and sweet types, and crops grown for seed production)
PEST	Cutworms, Fall Armyworm
RATE (mL/ha)	83
PEST	Armyworm <i>Pseudaletia unipuncta</i>
RATE (mL/ha)	83 - 208
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	<p>Spray no later than when the first feeding is seen on foliage. Repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring. Where there are two generations, late plantings of sweet corn will require sprays from the late whorl stage until close to harvest. This treatment will not prevent internal cob damage if the insect has penetrated the ear.</p> <p>Cutworms: (up to the 5-leaf stage). Applications should be made under moist conditions in the evening or night when cutworm activity is highest. Do not disturb the soil surface for 5 days after treatment.</p>
NOTES	<p>Allow a 4 to 7 day interval between treatments.</p> <p>DO NOT apply within 1 day of harvest for sweet corn.</p> <p>DO NOT apply within 14 days if the crop is being harvested for silage.</p> <p>DO NOT use more than 3 applications per year.</p> <p>Aerial Application: DO NOT make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p>
<p>Tank-Mix with TILT® 250E Fungicide: MATADOR 120EC can be tank-mixed with TILT 250E Fungicide for insect and foliar disease control. Apply MATADOR 120EC at a rate of 83 mL/ha in tank-mix with TILT 250E Fungicide at a rate of 250-500 mL/ha. Refer to both the MATADOR 120EC and TILT 250E Fungicide labels for insects and diseases controlled, specific application instructions and precautions. Insects and crops must be at the correct stage as specified on the MATADOR 120EC as well as TILT 250E Fungicide labels.</p> <p>This tank-mix can be applied by air and ground. Use 40 L of water per hectare when applying by air.</p> <p>This tank-mix is not registered for use on popcorn.</p> <p>Do not harvest treated corn within 14 days of this tank-mix application.</p> <p>Do not make more than 3 applications on seed corn and 2 applications on field and sweet corn per year.</p> <p>Compatibility should always be confirmed by premixing small proportional quantities of water, MATADOR 120EC, and the tank-mix partner in advance.</p>	
<p>Tank-Mix with QUADRIS® Flowable Fungicide: Seed Corn, Field Corn and Sweet Corn - MATADOR 120EC can be tank-mixed with QUADRIS Flowable Fungicide for insect and foliar disease control. Apply MATADOR 120EC at a rate of 83 mL/ha in tank-mix with QUADRIS Flowable Fungicide at a rate of 453 mL/ha. Refer to both the MATADOR 120EC and QUADRIS Flowable Fungicide labels for insects and diseases controlled, specific application instructions and precautions. Insects and crops must be at the correct stage as specified on the MATADOR 120EC as well as QUADRIS Flowable Fungicide labels.</p> <p>This tank-mix can be applied by air and ground. Use 200 L of water per hectare when applying by ground. Use 45 L of water per hectare when applying by air.</p> <p>This tank-mix is not registered for use on popcorn.</p> <p>Do not harvest treated corn within 14 days of this tank-mix application.</p> <p>Do not make more than 2 applications per year.</p> <p>Compatibility should always be confirmed by premixing small proportional quantities of water, MATADOR 120EC, and the tank-mix partner in advance.</p>	

OTHER USES	
CROPS	ALFALFA/GRASS MIXTURES, UNIMPROVED PASTURE, SUMMERFALLOW
PEST	Grasshoppers
RATE (mL/ha)	63 - 83 for ground application 83 for aerial application
APPLICATION METHOD	Ground or aerial application (see rates above)
APPLICATION TIMING	Apply the low rate when grasshoppers are up to the 3 rd nymphal stage (up to 1 cm in length) or when insect numbers are low. Apply the high rate when grasshoppers are larger, up to but not including winged adults (up to 2.5 cm in length) or when insect numbers are high. If insect pressure is high apply a spray to a 15 m strip around the field. Avoid environmentally sensitive areas and unregistered crops.
NOTES	Allow a 7 day interval between treatments. Alfalfa seed from treated crops is not to be used for production of 'alfalfa sprouts' for human consumption. DO NOT apply within 3 days of livestock foraging. DO NOT use more than 3 applications per year. Aerial Application: DO NOT make more than 1 application of 83 mL/ha of the allowed seasonal total by air.
CROPS	ALFALFA
PEST	Alfalfa Weevil, Lygus Bug, Tarnished Plant Bug, Pea Aphid, Potato Leafhopper
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	Allow a 7 day interval between treatments. Alfalfa seed from treated crops is not to be used for production of 'alfalfa sprouts' for human consumption. DO NOT apply within 3 days of livestock foraging. DO NOT use more than 3 applications per year. Aerial Application: DO NOT make more than 1 application of 83 mL/ha of the allowed seasonal total by air.

ALFALFA Rate Conversion Chart:

Rate (mL/ha)	Hectares Treated with 1 L Product
63	15.9
83	12.0

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the use(s) described below were developed by persons other than Syngenta Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Syngenta Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Syngenta Canada Inc. harmless from any claims based on efficacy or phytotoxicity in connection with the use(s) described below.

DIRECTIONS FOR USE

BULB VEGETABLES	
CROPS	Garlic, great-headed (elephant) garlic, leek, dry bulb onion, green onion, Welch onion and Shallot
PEST	Onion Thrips, Leek Moth (<i>Acrolepiopsis assectella</i>)
RATE (mL/ha)	188 Apply in sufficient water to ensure thorough coverage. A water volume of 500 L/ha of water is recommended
APPLICATION METHOD	Apply by foliar broadcast spray Ground application only
APPLICATION TIMING	Timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring. Consult provincial guidelines and local extension experts for treatment threshold for different crops. Thrips: apply when the insect or damage appears. Thorough coverage and penetration of spray droplets into the leaf whorls, where most thrips are feeding and hiding, are essential for good control.
NOTES	Allow 7 days between applications. DO NOT apply more than 3 applications per year. DO NOT apply within 14 days of harvest. DO NOT APPLY BY AIR. For hand harvest and thinning green onions, DO NOT re-enter treated areas for 10 days after treatment. For all other activities DO NOT re-enter treated areas until 24 hours after treatment. For all other crops DO NOT re-enter treated areas until 24 hours after treatment. Workers shall be given oral warning of the re-entry interval.

LETTUCE	
CROPS	Head Lettuce
PEST	Cabbage Looper, Tarnished Plant Bug, Dark-sided and White Cutworms
RATE (mL/ha)	83
APPLICATION METHOD	Ground application only
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	Allow a 7 day interval between treatments. DO NOT apply within 3 days of harvest. DO NOT use more than 3 applications per year. DO NOT APPLY BY AIR. Use 500 L/ha of water for thorough coverage.
CROPS	Leaf Lettuce
PEST	Tarnished Plant Bug
RATE (mL/ha)	83
APPLICATION METHOD	Ground application only
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	Allow a 7 day interval between treatments. DO NOT apply within 3 days of harvest. DO NOT use more than 3 applications per year. DO NOT APPLY BY AIR. Use 500 L/ha of water for thorough coverage.
CHOKERIES	
CROPS	Choke Cherry shelterbelts
PEST	Prairie Tent Caterpillar, Ugly Nest Caterpillar, Fruit Tree Leafroller
RATE (mL/ha)	58
APPLICATION METHOD	Ground application only
APPLICATION TIMING	Prairie Tent Caterpillar: Apply prior to flowering when tents are visible, generally mid to late May. Ugly Nest Caterpillar: Apply after flowering when tents are first visible, generally early to mid June. Fruit Tree Leafroller: Apply after flowering when damage is first noted, generally early to mid June.
NOTES	Apply as a foliar spray so leaves are wet but not dripping. DO NOT use more than 1 application per year. DO NOT APPLY BY AIR. Use 1000 L/ha of water for thorough coverage.

BRASSICA LEAFY VEGETABLES	
CROPS	CROP SUBGROUP 5A (Head and Stem Brassica Subgroup): Broccoli, Chinese broccoli (gai lon), Brussels sprouts, cabbage, Chinese cabbage (napa), Chinese cabbage mustard (gai choy), cauliflower, cavolo broccolo and kohlrabi)
PEST	Swede midge (<i>Contarinia nasturtii</i>), Cabbage looper
RATE (mL/ha)	83
APPLICATION METHOD	Ground application only
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	<p>Allow at least 7 day interval between treatments.</p> <p>DO NOT apply within 1 day of harvesting cabbage, Chinese cabbage (napa), Chinese mustard cabbage (gai choy) and 3 days of harvesting broccoli, Brussels sprouts, cauliflower, Chinese broccoli, cavolo broccolo or kohlrabi.</p> <p>DO NOT use more than 3 applications per crop per year (249 mL product/year).</p> <p>DO NOT APPLY BY AIR.</p> <p>Use sufficient water for thorough coverage. A water volume of 100 to 200 L/ha by ground is recommended.</p>
CROPS	CROP SUBGROUP 5A (Head and Stem Brassica Subgroup): Broccoli, Chinese broccoli (gai lon), Brussels sprouts, cabbage, Chinese cabbage (napa), Chinese cabbage mustard (gai choy), cauliflower, cavolo broccolo and kohlrabi)
PEST	Onion thrips
RATE (mL/ha)	188
APPLICATION METHOD	Ground application only
APPLICATION TIMING	Apply when the insect first appears.
NOTES	<p>Apply by foliar broadcast spray.</p> <p>DO NOT apply within 1 day for mechanical harvesting cabbage and 3 days for mechanical harvesting all other crops in Crop Group 5A.</p> <p>DO NOT apply within 6 days for hand harvesting all crops in Crop Group 5A.</p> <p>DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days for scouting and 6 days for hand pruning, topping, irrigation, thinning and tying. An REI of 24 hours is required for all other activities.</p> <p>DO NOT apply more than 3 applications per growing season.</p> <p>Allow a 7 day interval between treatments.</p> <p>DO NOT apply by air.</p> <p>Apply in sufficient water to ensure thorough coverage.</p> <p>A water volume of 500 L/ha is recommended</p>

CROPS	CROP SUBGROUP 5A (Head and Stem Brassica Subgroup): Broccoli, Chinese broccoli (gai lon), Brussels sprouts, cabbage, Chinese cabbage (napa), Chinese cabbage mustard (gai choy), cauliflower, cavolo broccolo and kohlrabi)
PEST	Crucifer Flea Beetle, Diamondback Moth Larvae, Imported Cabbageworm
RATE (mL/ha)	42
APPLICATION METHOD	Ground application
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	<p>DO NOT use more than 3 applications per year. Allow a 7 day interval between treatments. DO NOT apply within 1 day of harvesting cabbage, Chinese cabbage (napa), Chinese mustard cabbage (gai choy) and 3 days of harvesting broccoli, Brussels sprouts, cauliflower, Chinese broccoli, cavolo broccolo or kohlrabi. DO NOT APPLY BY AIR. Use sufficient water for thorough coverage. A water volume of 100 to 200 L/ha by ground is recommended.</p>
CELERY	
CROPS	Celery
PEST	Tarnished plant bug
RATE (mL/ha)	83
APPLICATION METHOD	Ground application
APPLICATION TIMING	Timing of application should be based on the presence of vulnerable pest development stages and significant populations as based on local monitoring.
NOTES	<p>Allow at least 7 day interval between treatments. DO NOT apply within 3 days of harvest of celery. DO NOT use more than 3 applications per season. Maximal seasonal application is 30 g ai/ha. Use sufficient water for thorough coverage, applied by ground sprayer. A water volume of 500 L/ha is recommended. DO NOT APPLY BY AIR.</p>

LEGUME VEGETABLES	
CROPS	Crop Group 6 - Legume Vegetables including Soybean
PEST	Soybean aphid, Pea aphid, Bean aphid
RATE (mL/ha)	83 - 233
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	<p>The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.</p> <p>Use the higher rate when conditions favour rapidly increasing aphid populations. Repeat sprays at 7 day intervals depending on the presence of significant populations as determined by local monitoring. Provincial soybean aphid management guidelines suggest applying insecticide during the flowering growth stage of soybean development.</p> <p>Consult local agricultural personnel and provincial guidelines on the use of this product.</p>
NOTES	<p>Allow at least a 7 day interval between treatments.</p> <p>DO NOT apply within 7 days of harvest for succulent shelled and edible-podded peas and beans.</p> <p>DO NOT apply within 14 days of harvest of dry peas and beans (including lupins, lentils, chickpeas and fava beans).</p> <p>DO NOT apply within 21 days of harvest for soybean.</p> <p>DO NOT use more than 3 applications per season.</p> <p>Aerial application: Do not make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p> <p>DO NOT graze or harvest treated forage, straw or hay for livestock feed.</p> <p>Water Volume:</p> <p><u>For ground application:</u> 100 to 200 L/ha.</p> <p><u>For aerial application:</u> apply in minimum spray volume of 20 L/ha.</p>

LEGUME VEGETABLES	
CROPS	Crop Group 6: Legume Vegetables including Soybean
PEST	Western bean cutworm
RATE (mL/ha)	83 - 187
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	<p>The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.</p> <p>Consult local agricultural personnel and provincial guidelines on the use of this product.</p> <p>Cutworm activity is greatest during the late evening and night. Application should be timed as close as possible to insect feeding activity.</p>
NOTES	<p>Repeat sprays at 4-7 day intervals.</p> <p>DO NOT apply within 7 days of harvest for succulent shelled and edible-podded peas and beans.</p> <p>DO NOT apply within 14 days of harvest of dry peas and beans (including lupins, lentils, chickpeas and fava beans).</p> <p>DO NOT apply within 21 days of harvest for soybean.</p> <p>DO NOT use more than 3 applications per season.</p> <p>Aerial application: Do not make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p> <p>DO NOT graze or harvest treated forage, straw or hay for livestock feed.</p> <p>Water Volume:</p> <p><u>For ground application:</u> 100 to 200 L/ha.</p> <p><u>For aerial application:</u> apply in minimum spray volume of 20 L/ha.</p>

LEGUME VEGETABLES	
CROPS	Soybeans, Succulent and Dry Edible Beans*, Succulent and Dry Peas**, Chickpeas, Lentils
PEST	Cutworms
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	<p>The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.</p> <p>Cutworm activity is greatest during the late evening and night. Application should be timed as close as possible to insect feeding activity.</p> <p>Consult local agricultural personnel and provincial guidelines on the use of this product.</p>
NOTES	<p>Repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring.</p> <p>DO NOT apply within 7 days of harvest for succulent shelled and edible-podded peas and beans.</p> <p>DO NOT apply within 14 days of harvest of dry peas and beans (including lentils and chickpeas).</p> <p>DO NOT apply within 21 days of harvest for soybean.</p> <p>DO NOT use more than 3 applications per season.</p> <p>Aerial application: Do not make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p> <p>DO NOT graze or harvest treated forage, straw or hay for livestock feed.</p> <p>Water Volume:</p> <p><u>For ground application:</u> 100 to 200 L/ha.</p> <p><u>For aerial application:</u> apply in minimum spray volume of 20 L/ha.</p>

LEGUME VEGETABLES	
CROPS	Soybeans, Succulent and Dry Edible Beans*, Fava Beans, Lentils
PEST	Lygus bugs
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring. Consult local agricultural personnel and provincial guidelines on the use of this product.
NOTES	Repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring. DO NOT apply within 7 days of harvest for succulent shelled and edible-podded beans. DO NOT apply within 14 days of harvest of dry beans (including fava beans and lentils). DO NOT apply within 21 days of harvest for soybean. DO NOT use more than 3 applications per season. Aerial application: Do not make more than 2 applications of 83 mL/ha of the allowed seasonal total by air. DO NOT graze or harvest treated forage, straw or hay for livestock feed. Water Volume: <u>For ground application:</u> 100 to 200 L/ha. <u>For aerial application:</u> apply in minimum spray volume of 20 L/ha.
CROPS	Soybeans, Dry Peas**, Chickpeas and Lentils
PEST	Grasshoppers
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring. Consult local agricultural personnel and provincial guidelines on the use of this product.
NOTES	Repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring. DO NOT apply within 14 days of harvest of dry peas, chickpeas and lentils. DO NOT apply within 21 days of harvest for soybean. DO NOT use more than 3 applications per season. Aerial application: Do not make more than 2 applications of 83 mL/ha of the allowed seasonal total by air. DO NOT graze or harvest treated forage, straw or hay for livestock feed. Water Volume: <u>For ground application:</u> 100 to 200 L/ha. <u>For aerial application:</u> apply in minimum spray volume of 20 L/ha.

LEGUME VEGETABLES	
CROPS	Soybean, Succulent and Dry Edible Beans*, Succulent and Dry Peas**, Fava Beans (broad beans) and Chickpeas
PEST	Bean Leaf Beetle
RATE (mL/ha)	83 - 233 for ground application 83 for aerial application
APPLICATION METHOD	Ground or aerial application (see rates above)
APPLICATION TIMING	<p>For bean leaf beetle, use the higher rate to target higher pest populations or when conditions are conducive to bean pod mottle virus. Repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring.</p> <p>The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.</p> <p>Consult local agricultural personnel and provincial guidelines on the use of this product.</p>
NOTES	<p>DO NOT apply within 7 days of harvest for succulent shelled and edible-podded peas and beans.</p> <p>DO NOT apply within 14 days of harvest of dry peas and beans (including fava beans and chickpeas).</p> <p>DO NOT apply within 21 days of harvest for soybean.</p> <p>DO NOT use more than 3 applications per season.</p> <p>Aerial application: Do not make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p> <p>DO NOT graze or harvest treated forage, straw or hay for livestock feed.</p> <p>Water Volume:</p> <p><u>For ground application:</u> 100 to 200 L/ha.</p> <p><u>For aerial application:</u> apply in minimum spray volume of 20 L/ha.</p>

LEGUME VEGETABLES	
CROPS	Succulent and Dry Edible Beans*, Succulent Peas**, Fava Beans (broad beans), Chickpeas and Lentils
PEST	Potato Leafhopper
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring. Consult local agricultural personnel and provincial guidelines on the use of this product.
NOTES	Repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring. DO NOT apply within 7 days of harvest for succulent shelled and edible-podded peas and beans. DO NOT apply within 14 days of harvest of dry beans (including lentils, chickpeas and fava beans). DO NOT apply within 21 days of harvest for soybean. DO NOT use more than 3 applications per season. Aerial application: Do not make more than 2 applications of 83 mL/ha of the allowed seasonal total by air. DO NOT graze or harvest treated forage, straw or hay for livestock feed. Water Volume: <u>For ground application:</u> 100 to 200 L/ha. <u>For aerial application:</u> apply in minimum spray volume of 20 L/ha.

LEGUME VEGETABLES	
CROPS	Succulent and Dry Edible Beans*
PEST	Corn Borer
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	<p>Apply before the larva bores into the plant stalk or pods.</p> <p>The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.</p> <p>Consult local agricultural personnel and provincial guidelines on the use of this product.</p>
NOTES	<p>Repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring.</p> <p>DO NOT apply within 7 days of harvest for succulent shelled and edible-podded beans.</p> <p>DO NOT apply within 14 days of harvest of dry beans.</p> <p>DO NOT use more than 3 applications per season.</p> <p>Aerial application: Do not make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p> <p>DO NOT graze or harvest treated forage, straw or hay for livestock feed.</p> <p>Water Volume:</p> <p><u>For ground application:</u> 100 to 200 L/ha.</p> <p><u>For aerial application:</u> apply in minimum spray volume of 20 L/ha.</p>

LEGUME VEGETABLES	
CROPS	Field Peas
PEST	Pea leaf weevil (<i>Sitona lineata</i>)
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	<p>Make the first application after emergence but prior to the 5 to 6 node stage. Apply while the adults are still present on the plants, before egg laying begins.</p> <p>The need and timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.</p> <p>Consult local agricultural personnel and provincial guidelines on the use of this product.</p>
NOTES	<p>Repeat sprays at 4 to 7 day intervals depending on the presence of significant populations as determined by local monitoring.</p> <p>DO NOT apply within 14 days of harvest for dry peas.</p> <p>DO NOT use more than 3 applications per season.</p> <p>Aerial application: Do not make more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p> <p>DO NOT graze or harvest treated forage, straw or hay for livestock feed.</p> <p>Water Volume:</p> <p><u>For ground application:</u> 100 to 200 L/ha.</p> <p><u>For aerial application:</u> apply in minimum spray volume of 20 L/ha.</p>
<p>* Beans, succulent and dry edible: Beans (<i>Phaseolus</i> spp.) (includes, runner bean, snap beans, wax beans, lima bean (green), field bean, kidney bean, navy bean, Pinto bean, tepary bean); bean (<i>Vigna</i> spp.) (includes asparagus bean, Chinese longbean, moth bean, yardlong bean, adzuki bean, mung bean, rice bean, urd bean, blackeyed pea, catjang, cowpea, southern pea, crowder pea); jackbean; sword bean; bean (<i>Lupinus</i> spp.) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin), lablab bean, guar.</p> <p>** Peas, succulent: Pea (<i>Pisum</i> spp.) (includes dwarf pea, edible-pod pea, snow pea, sugar snap pea, English pea, garden pea, green pea), pigeon pea. Peas, dry: Peas (<i>Pisum</i> spp.) (includes field pea), pigeon pea.</p>	

LEGUMES VEGETABLES (CROP GROUP 6) INCLUDING SOYBEANS

MATADOR 120EC TANK-MIX WITH TILT 250E FUNGICIDE

MATADOR 120EC can be tank-mixed with TILT 250E Fungicide for insect and foliar disease control. Apply MATADOR 120EC at a rate of 83-233 mL/ha for control of soybean aphid on soybean and at a rate of 83mL/ha for the rest of the crops in Crop Group 6 in a tank-mix with TILT 250E Fungicide at a rate of 250-756mL/ha. Refer to both the MATADOR 120EC and TILT 250E Fungicide labels for insects and diseases controlled, specific application instructions and precautions. Pests and crops must be at the correct stage as specified on the MATADOR 120EC as well as TILT 250E Fungicide labels. DO NOT apply more than 2 applications per season of this tank-mix. PHI 30 days for crop subgroup 6C (dry legume vegetables) and soybeans. PHI 15 days for crop subgroup 6A (edible podded legume vegetables) and 6B (succulent shelled legume vegetables). DO NOT graze or harvest treated forage, straw or hay for livestock feed. Not all members of the legume vegetable group have been tested for efficacy and phytotoxicity at the recommended label rates, and should be used at the discretion of the user. This tank-mix can be applied by ground application equipment only. DO NOT APPLY THE TANK-MIX BY AIR.

MATADOR 120EC TANK-MIX WITH QUADRIS FLOWABLE FUNGICIDE

MATADOR 120EC can be tank-mixed with QUADRIS Flowable Fungicide for insect and foliar disease control. Apply MATADOR 120EC at a rate of 83-233 mL/ha for control of soybean aphid on soybean and at a rate of 83mL/ha for the rest of the crops in Crop Group 6 in a tank-mix with QUADRIS Flowable Fungicide at a rate of 500mL/ha. Refer to both the MATADOR 120EC and QUADRIS Flowable Fungicide labels for insects and diseases controlled, specific application instructions and precautions. Pests and crops must be at the correct stage as specified on the MATADOR 120EC as well as QUADRIS Flowable Fungicide label. DO NOT apply more than 2 applications per season of this tank-mix. DO NOT make more than one application to soybean hay and dry pea hay per season of this tank-mix. PHI 30 days for crop subgroup 6C (dry legume vegetables) and soybeans. PHI 15 days for crop subgroup 6A (edible podded legume vegetables) and 6B (succulent shelled legume vegetables). DO NOT apply within 14 days of harvest of soybean hay and dry pea hay. A plantback interval of 30 days for broadleaf and root crops, and of 45 days for cereals is required for this tank-mix. DO NOT feed dried pea vines to livestock. DO NOT graze or harvest treated forage, straw or hay for livestock feed. Not all members of the legume vegetable group have been tested for efficacy and phytotoxicity at the recommended label rates, and should be used at the discretion of the user. This tank-mix can be applied by ground application equipment only. DO NOT APPLY THE TANK-MIX BY AIR.

MATADOR 120EC TANK-MIX WITH QUILT FUNGICIDE

MATADOR 120EC can be tank-mixed with QUILT Fungicide for insect and foliar disease control. Apply MATADOR 120EC at a rate of 83-233 mL/ha for control of soybean aphid on soybean and at a rate of 83mL/ha for the rest of the crops in Crop Group 6 in a tank-mix with QUILT Fungicide at a rate of 1.0 -1.5 L/ha. Refer to both the MATADOR 120EC and QUILT Fungicide labels for insects and diseases controlled, specific application instructions and precautions. Pests and crops must be at the correct stage as specified on the MATADOR 120EC as well as QUILT Fungicide label. DO NOT apply more than 2 applications per season of this tank-mix. DO NOT make more than one application to soybean hay and dry pea hay of this tank-mix per season. PHI 30 days of harvest for crop subgroup 6C (dry legume vegetables) and soybeans. PHI 15 days for crop subgroup 6A (edible podded legume vegetables) and 6B (succulent shelled legume vegetables). DO NOT apply within 14 days of harvest of soybean hay and dry pea hay of this tank-mix per season. DO NOT graze or harvest treated forage, straw or hay for livestock feed. Not all members of the legume vegetable group have been tested for efficacy and phytotoxicity at the recommended label rates, and should be used at the discretion of the user. This tank-mix can be applied by ground or air application equipment. Apply in at least 100 L of water per hectare for ground application and 45 L of water per hectare for aerial application.

SUCCULENT BEANS**MATADOR 120EC TANK-MIX WITH LANCE® WDG FUNGICIDE**

MATADOR 120EC can be tank-mixed with Lance WDG Fungicide for control of corn borer, white mold (*Sclerotinia sclerotiorum*), and gray mold (*Botrytis cinera*). Apply MATADOR 120EC at a rate of 83 mL/ha in a tank-mix with Lance Fungicide at a rate of 0.42 kg/ha for gray mold, and 0.56-0.77 kg/ha for white mold in a spray volume of 100-200 L. Refer to both the MATADOR 120EC and Lance Fungicide labels for specific application instructions and precautions. Apply before larva bores into the plant stalk or pods. Follow the most restrictive application directions for each of the tank-mix partner with respect to the maximum number of applications, pre-harvest interval, and other label instructions. DO NOT apply more than 2 applications per season of this tank-mix using an application interval of 7-14 days. Use the high rate and shorter interval of Lance Fungicide when disease pressure is high. PHI 14 days. This tank-mix can be applied by ground application equipment only. DO NOT APPLY THE TANK-MIX BY AIR.

LETTUCE (Greenhouse only)	
CROPS	Lettuce (greenhouse)
PEST	Cabbage Loopers
RATE (mL/ha)	83
APPLICATION METHOD	Ground application only
APPLICATION TIMING	Apply when insects or damage first appear. For best results, apply against early developmental stages of the pest.
NOTES	DO NOT apply within 3 days of harvest. DO NOT use more than 2 applications per year. DO NOT apply by air. Apply in sufficient water to ensure adequate coverage.
FERNS OF ASPARAGUS	
CROPS	Ferns of Asparagus
PEST	European Asparagus Aphids
RATE (mL/ha)	83
APPLICATION METHOD	Ground application only
APPLICATION TIMING	Apply post-harvest to fern only. Reapply after 7-10 days if monitoring indicates further applications are required.
NOTES	Allow a 7 to 10 day interval between treatments. DO NOT apply within 180 days of harvest. DO NOT apply more than 3 applications per season. DO NOT apply by air. Apply in 100 to 200 L of water per hectare.

CEREAL CROPS - CROP GROUP 15 – Corn, Barley, Buckwheat, Pearl Millet, Proso Millet, Oats, Rice, Rye Sorghum, Teosinte, Triticale, Wheat, and Wild Rice	
CROPS	Crop Group 15 - Corn (field, sweet, pop, and seed), Barley, Buckwheat, Pearl Millet, Proso Millet, Oats, Rice, Rye Sorghum, Teosinte, Triticale, Wheat, and Wild Rice
PEST	Armyworm
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Spray no later than when the first feeding damage is seen on foliage.
NOTES	<p>Repeat sprays at 4-7 day intervals.</p> <p>DO NOT apply more than 3 applications per hectare in total per season.</p> <p>DO NOT make more than 2 applications by air per season.</p> <p>DO NOT apply within 28 days of harvest for barley, buckwheat, millet (pearl and proso), oats, rice, rye, sorghum (milo), teosinte, triticale, wheat and wild rice grain.</p> <p>DO NOT apply within 1 day of harvest for sweet corn.</p> <p>DO NOT apply within 14 days if the crop is being harvested for silage.</p> <p>DO NOT apply within 21 days of harvest for field corn, popcorn and corn grown for seed.</p> <p>Water Volume:</p> <p>Ground Application: Apply in 100 - 200 L of water per hectare.</p> <p>Aerial Application: Apply in 10 - 40 L of water per hectare.</p>
CROPS	Corn (Field, Sweet, Seed, and Pop)
PEST	Armyworm (<i>Pseudaletia unipuncta</i>)
RATE (mL/ha)	83 - 208
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Spray no later than when first feeding damage is seen on foliage.
NOTES	<p>Repeat sprays at 4-7 day intervals depending on the presence of significant populations as determined by local monitoring.</p> <p>DO NOT apply more than 3 applications per hectare in total per season.</p> <p>DO NOT apply more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p> <p>DO NOT apply within 1 day of harvest for sweet corn.</p> <p>DO NOT apply within 14 days of harvest of corn for silage.</p> <p>DO NOT apply within 21 days of harvest for field corn, popcorn and corn grown for seed.</p> <p>Water Volume:</p> <p>Aerial Application: Apply in 10 - 40 L of water per hectare.</p> <p>Ground Application: Apply in 100 - 200 L of water per hectare.</p>

CROPS	Corn (Field, Sweet, Seed and Pop)
PEST	European corn borer (<i>Ostrinia nubilalis</i>), Corn earworm (<i>Helicoverpa zea</i>)
RATE (mL/ha)	83 - 187
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Spray no later than when first feeding damage is seen on foliage. Where there are two generations, late plantings of sweet corn will require sprays from the late whorl stage until close to harvest. This treatment will not prevent internal cob damage if the insect has penetrated the ear.
NOTES	Repeat sprays at 4-7 day intervals depending on the presence of significant populations as determined by local monitoring. DO NOT apply more than 3 applications per hectare in total per season. DO NOT make more than 2 applications of 187 mL/ha by air per season. DO NOT apply within 1 day of harvest for sweet corn. DO NOT apply within 14 days of harvest of corn for silage. DO NOT apply within 21 days of harvest for field corn, popcorn and corn grown for seed. Water Volume: <u>Ground Application:</u> Apply in 100 - 200 L of water per hectare. <u>Aerial Application:</u> Apply in 10 - 40 L of water per hectare.
CROPS	Corn (Field, Sweet, Seed and Pop)
PEST	Western bean cutworm
RATE (mL/ha)	83 -187
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Applications should be based on the presence of vulnerable pest development stages and significant populations as determined by local monitoring
NOTES	Repeat sprays at 4-7 day intervals depending on the presence of significant populations as determined by local monitoring. DO NOT apply more than 3 applications per hectare in total per season. DO NOT make more than 2 applications of 83-187 mL/ha by air per season. DO NOT apply within 1 day of harvest for sweet corn. DO NOT apply within 14 days of harvest of corn for silage. DO NOT apply within 21 days of harvest for field corn, popcorn and corn grown for seed. Water Volume: <u>Ground Application:</u> Apply in 100 - 200 L of water per hectare. <u>Aerial Application:</u> Apply in 10 - 40 L of water per hectare.

TIMOTHY (grown for hay or seed)	
CROPS	Timothy (grown for hay or seed)
PEST	Grasshoppers
RATE (mL/ha)	63 – 83
APPLICATION METHOD	Ground application only
APPLICATION TIMING	Apply the low rate when grasshoppers are up to the 3 rd nymphal stage (up to 1 cm in length) or when insect numbers are low. Apply the high rate when grasshoppers are larger, up to but not including winged adults (up to 2.5 cm in length) or when insect numbers are high. If insect pressure is high apply a spray to a 15 m strip around the field. Avoid environmentally sensitive areas and unregistered crops.
NOTES	Allow 7 days between applications. DO NOT apply more than 3 applications per season. DO NOT apply within 14 days of harvest. DO NOT apply by air. Crops treated with MATADOR 120EC may be fed to non-lactating dairy animals and other livestock following a 3 day interval from application to harvest or foraging. Apply in 100 to 200 L of water per hectare.
SWEET POTATO	
CROPS	Sweet Potato
PEST	Potato Flea Beetle, Tuber Flea Beetle, Potato Leafhopper
RATE (mL/ha)	83 mL/ha Apply in a minimum of 100 L of water/ha
APPLICATION METHOD	Ground only
APPLICATION TIMING	Timing of application should be based on the presence of vulnerable pest development stages and significant population as determined by local monitoring.
NOTES	Allow 7 days between applications. DO NOT apply more than 3 applications per year. DO NOT apply within 7 days of harvest. DO NOT apply by air.

POTATOES	
CROPS	Potatoes
PEST	Armyworm (<i>Pseudaletia unipuncta</i>)
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Spray no later than when first feeding damage is seen on foliage.
NOTES	<p>Repeat sprays at 4-7 day intervals depending on the presence of significant populations as determined by local monitoring.</p> <p>DO NOT apply within 7 days of harvest.</p> <p>DO NOT apply more than 3 applications per year for ground.</p> <p>DO NOT apply more than 2 applications of 83 mL/ha of the allowed seasonal total by air.</p> <p>Water Volume: <u>Ground Application:</u> Apply in 100 - 200 L of water per hectare. <u>Aerial Application:</u> Apply in 10 - 40 L of water per hectare.</p>
SUNFLOWERS	
CROPS	Sunflowers
PEST	Lygus bugs (<i>Lygus</i> spp.)
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Timing of application should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	<p>Allow 7 days between applications.</p> <p>DO NOT apply within 7 days of harvest.</p> <p>DO NOT apply more than 1 application of 83 mL/ha of the seasonal total by air.</p> <p>DO NOT apply more than 3 applications per hectare in total per season.</p> <p>DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.</p> <p>Water Volume: <u>Ground Application:</u> Apply in 100 - 200 L of water per hectare. <u>Aerial Application:</u> Apply in 10 - 40 L of water per hectare.</p>

CARROTS	
CROPS	Carrot
PEST	Carrot rust fly (<i>Psila rosae</i>), Carrot weevil (<i>Listronotus oregonensis</i>)
RATE (mL/ha)	83
APPLICATION METHOD	Ground application
APPLICATION TIMING	First application should be applied at the 2-3 leaf stage when insects or damage appear. Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	Allow 7 days between applications. DO NOT apply within 14 days of harvest. DO NOT apply more than 3 applications per year. DO NOT apply by air.
POPLAR and WILLOW	
CROPS	Poplar (<i>Populus</i> spp.) and willow (<i>Salix</i>) plantings, including Short-Rotation-Intensive-Culture (SRIC), their hybrids and their planting stock
PEST	Grasshoppers
RATE (mL/ha)	63 - 83 for ground application 83 for aerial application
APPLICATION METHOD	Ground or aerial application (see rates above)
APPLICATION TIMING	Apply immediately before planting of the new crop, and/or following planting of the crop (depending on the developmental stage of the grasshoppers). Apply in the second growing season where a significant risk exists and/or where a significant re-plant is required. Apply the low rate when grasshoppers are up to the 3rd nymphal stage (up to 1 cm in length) or when insect numbers are low. Apply the high rate when grasshoppers are larger, up to but not including winged adults (up to 2.5 cm in length) or when insect numbers are high. If insect pressure is high apply a spray to a 15 m strip around the field. Avoid environmentally sensitive areas and unregistered crops.
NOTES	Allow 7 days between applications. DO NOT apply more than 3 applications per hectare in total per season. DO NOT apply more than 2 applications of the seasonal total by air. Water Volume: <u>Ground Application:</u> Use a minimum of 100 L of water/ha. Use sufficient water for thorough coverage. <u>Aerial Application:</u> Apply in 10 - 40 L of water per hectare. If using high pressure handheld equipment, during mixing, loading, application, clean-up and repair activities workers should wear coveralls over long pants, long-sleeved shirts, chemical resistant gloves, chemical-resistant boots and either a respirator with a NIOSH/MSHA/BHSE approved organic-vapour-removing cartridge with a prefilter approved for pesticides, OR a NIOSH/MSHA/BHSE approved canister approved for pesticide. In addition, during mixing, loading, clean-up and repair activities, workers must also wear goggles.

POPLAR and WILLOW	
CROPS	Poplar (<i>Populus</i> spp.) and willow (<i>Salix</i>) plantings, including Short-Rotation-Intensive-Culture (SRIC), their hybrids and their planting stock
PEST	Potato leaf hopper, tarnished plant bug
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Apply when insects or damage appear. Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	<p>Allow 7 days between applications.</p> <p>DO NOT apply more than 3 applications per hectare in total per season.</p> <p>DO NOT apply more than 2 applications of the seasonal total by air.</p> <p>Water Volume:</p> <p><u>Ground Application:</u> Use a minimum of 100 L of water/ha. Use sufficient water for thorough coverage.</p> <p><u>Aerial Application:</u> Apply in 10 - 40 L of water per hectare.</p> <p>If using high pressure handheld equipment, during mixing, loading, application, clean-up and repair activities workers should wear coveralls over long pants, long-sleeved shirts, chemical resistant gloves, chemical-resistant boots and either a respirator with a NIOSH/MSHA/BHSE approved organic-vapour-removing cartridge with a prefilter approved for pesticides, OR a NIOSH/MSHA/BHSE approved canister approved for pesticide. In addition, during mixing, loading, clean-up and repair activities, workers must also wear goggles.</p>
CROPS	Poplar (<i>Populus</i> spp.) and willow (<i>Salix</i>) plantings, including Short-Rotation-Intensive-Culture (SRIC), their hybrids and their planting stock
PEST	Prairie tent caterpillar, ugly nest caterpillar
RATE (mL/ha)	58
APPLICATION METHOD	Ground application
APPLICATION TIMING	<p>Prairie tent caterpillar: Apply when tents are visible, generally mid to late May.</p> <p>Ugly nest caterpillar: Apply when tents are first visible, generally early to mid June.</p>
NOTES	<p>DO NOT apply more than 1 application per hectare in total per season.</p> <p>Water Volume:</p> <p><u>Ground Application:</u> Use a minimum of 100 L of water/ha. Use sufficient water for thorough coverage.</p> <p>If using high pressure handheld equipment, during mixing, loading, application, clean-up and repair activities workers should wear coveralls over long pants, long-sleeved shirts, chemical resistant gloves, chemical-resistant boots and either a respirator with a NIOSH/MSHA/BHSE approved organic-vapour-removing cartridge with a prefilter approved for pesticides, OR a NIOSH/MSHA/BHSE approved canister approved for pesticide. In addition, during mixing, loading, clean-up and repair activities, workers must also wear goggles.</p>

STRAWBERRIES	
CROPS	Strawberries
PEST	Suppression of black vine weevil adults (<i>Otiorhynchus sulcatus</i>)
RATE (mL/ha)	104
APPLICATION METHOD	Foliar spray
APPLICATION TIMING	Applications are to be made as soon as weevils appear, but not until after the final harvest of strawberries.
NOTES	Allow 7 days between applications. DO NOT apply within 7 days of harvest. Apply in sufficient water to ensure thorough coverage. The recommended application volume is 250-500 L/ha. DO NOT apply more than 3 applications per year. DO NOT apply by air.
SASKATOON BERRIES	
CROPS	Saskatoon berries
PEST	Saskatoon bud moth
RATE (mL/ha)	104
APPLICATION METHOD	Ground
APPLICATION TIMING	Application should be based on the presence of vulnerable pest stages as determined by monitoring. If warranted, make the first application at bud break (early green tip). A second application can be made after petal drop if insect pressure indicates the need.
NOTES	Allow 10 to 15 days between applications. DO NOT apply within 21 days of harvest. DO NOT apply more than 2 applications per year. Water Volume: Apply in a minimum of 200 L of water/ha.
CUCURBIT VEGETABLES	
CROPS	CROP GROUP 9: chayote (fruit), Chinese waxgourd, citron melon, cucumber, gherkin, edible gourd, momordica spp., muskmelon, pumpkin, summer squash, winter squash, watermelon
PEST	Striped cucumber beetle (<i>Acalymma vittatum</i>) Squash bug (<i>Anasa tristis</i>)
RATE (mL/ha)	187-233 Use higher application rate when pest populations are high.
APPLICATION METHOD	Ground application
APPLICATION TIMING	Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds. Reapply after a minimum of 7 days if monitoring indicates it is necessary.
NOTES	Allow 7 days between applications. DO NOT apply within 1 day of harvest. DO NOT apply more than 3 applications per growing season. Water Volume: Use sufficient water for thorough coverage. 100 to 200 L/ha is recommended.

CANOLA	
CROPS	Canola
PEST	Swede midge (<i>Contarinia nasturtii</i>)
RATE (mL/ha)	83
APPLICATION METHOD	Ground or aerial application
APPLICATION TIMING	Timing of applications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	<p>Allow a 7 day interval between treatments.</p> <p>DO NOT apply within 7 days of harvest.</p> <p>DO NOT use more than 3 applications per year.</p> <p>Aerial Application: DO NOT make more than 1 application of 83 mL/ha of the allowed seasonal total by air.</p> <p>Water Volume:</p> <p><u>Ground Application:</u> Apply in 100 - 200 L of water per hectare.</p> <p><u>Aerial Application:</u> Apply in 10 - 40 L of water per hectare.</p>
CONIFER SEED ORCHARDS	
CROPS	Douglas fir, hemlocks, larches, pines, spruces, true firs.
PEST	Western conifer-seed bug (<i>Leptoglossus occidentalis</i>)
RATE (mL/ha)	40 mL/ 100 L water. Spray to the point of run-off, ranging from 800-1200 L/ha depending on tree size
APPLICATION METHOD	Air blast
APPLICATION TIMING	The first application should be made when overwintered adults appear in the seed orchard. Timing of reapplications should be based on the presence of vulnerable pest developmental stages and significant populations as determined by local monitoring.
NOTES	<p>Allow a minimum of 10 day between applications.</p> <p>Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 1 day for handset irrigation activities.</p> <p>For all other post-application activities, DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.</p> <p>Do not apply more than 3 applications per year.</p>
ADDITIONAL USE DIRECTIONS	DO NOT APPLY BY AIR

TREE NUTS - CROP GROUP 14-11 – Tree Nuts (Excluding Ginkgo, Monkey puzzle nut and Pine nuts) - Beechnut, Bur Oak, Butternut, Chestnut, Chinquapin, Hazelnut (Filbert), Heartnut, Hickory nut, Japanese horse-chestnut, Black walnut, English walnut, Yellowhorn	
CROPS	Tree Nuts (Excluding Ginkgo, Monkey puzzle nut and Pine nuts) - Beechnut, Bur Oak, Butternut, Chestnut, Chinquapin, Hazelnut (Filbert), Heartnut, Hickory nut, Japanese horse-chestnut, Black walnut, English walnut, Yellowhorn
PEST	Oblique-banded leaf roller
RATE (mL/ha)	83
PEST	Aphids
RATE (mL/ha)	104
APPLICATION METHOD	Apply by ground equipment with sufficient water to obtain full coverage of the foliage or target area.
APPLICATION TIMING	Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold.
NOTES	DO NOT apply within 14 days of harvest. DO NOT apply more than 390 mL/ha of MATADOR per year. DO NOT apply more than 4 applications per year for the obliquebanded leafroller. DO NOT apply more than 3 applications per year for aphids.

CROPS	Walnut, butternut, heartnut
PEST	Codling moth
RATE (mL/ha)	83
PEST	Butternut curculio and walnut husk fly
RATE (mL/ha)	104
APPLICATION METHOD	Apply by ground equipment with sufficient water to obtain full coverage of the foliage or target area.
APPLICATION TIMING	Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold.
NOTES	DO NOT apply within 14 days of harvest. DO NOT apply more than 390 mL/ha of MATADOR per year. DO NOT apply more than 4 applications per year for the codling moth. DO NOT apply more than 3 applications per year for butternut curculio and walnut husk fly.

Resistance-Management Recommendations

For resistance management, please note that MATADOR 120EC contains a Group 3 insecticide. Any insect population may contain individuals naturally resistant to MATADOR 120EC and other Group 3 insecticides. The resistant individuals may dominate the insect population if this group of insecticides is used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance:

Where possible, rotate the use of MATADOR 120EC or other Group 3 insecticides with different groups that control the same pests in a field.

Use tank-mixtures with insecticides from a different group when such use is permitted.

Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.

Monitor treated pest populations for resistance development.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.

For further information or to report suspected resistance, contact Syngenta Canada Inc. company representatives at 1-877-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

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SECTION 1: PRODUCT INFORMATION

Product Identifier: MATADOR® 120EC INSECTICIDE

Formulation Number: A12975F

Registration Number: 24984 (Pest Control Products Act)

Product Use: Insecticide. Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3

SDS prepared by: Department of Regulatory & Biological Assessment, Syngenta Canada Inc.

For further information, contact: 1-87-SYNGENTA (1-877-964-3682)

In Case of Emergency, Call: 1-800-327-8633 (FAST MED)

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with UN GHS Version 5.

Hazard Classification(s): Acute Toxicity (Inhalation) – Category 3
 Acute Toxicity (Oral) – Category 3
 Aspiration Hazard – Category 1
 Eye Irritation – Category 2B
 Skin Irritation – Category 2
 Specific Target Organ Toxicity (STOT) Single Exposure – Category 3

Hazard Symbol(s):



Signal Word: DANGER

Hazard Statement(s): H301 – Toxic if swallowed.
 H304 – May be fatal if swallowed and enters airway.
 H315 – Causes skin irritation.
 H320 – Causes eye irritation.
 H331 – Toxic if inhaled.
 H336 – May cause drowsiness or dizziness.

Precautionary Statement(s):

Prevention: P261 – Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264 – Wash thoroughly after handling.
 P270 – Do not eat, drink or smoke when using this product.
 P271 – Use only outdoors or in a well-ventilated area.
 P280 – Wear protective gloves.

Response:

P301+P310 – IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302+P352 – IF ON SKIN: Wash with plenty of water.
P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311 – Call a POISON CENTER/doctor if inhaled.
P312 – Call a POISON CENTER/doctor if you feel unwell.
P321 – Specific treatment: See Section 4 of this SDS.
P331 – Do NOT induce vomiting.
P332+P313 – If skin irritation occurs: Get medical advice/attention.
P337+P313 – If eye irritation persists: Get medical advice/attention.
P362+P364 – Take off contaminated clothing and wash it before reuse.

Storage:

P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
P405 – Store locked up.

Disposal:

P501 – Dispose of contents/container to an approved waste disposal plant.

Other Hazards Which do not Result in GHS Classification: To avoid risk to human health and the environment, comply with the instructions for use. Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS
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Chemical Name	Common Name	CAS Number	Average % by weight
White mineral oil (petroleum)	White mineral oil	8042-47-5	30 - 50
Solvent naphtha (petroleum), heavy aromatic	Petroleum solvent	64742-94-5	30 - 50
R-cyano-(3-phenoxyphenyl)methyl(1S,3S)-rel-3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propen-1-yl]-2,2-dimethylcyclopropanecarboxylate	Lambda-cyhalothrin	91465-08-6	13.2

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Safety Data Sheet with you when calling Syngenta, a poison control centre or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [1-800-327-8633 (1-800-FASTMED)], for further information.

Eye Contact: Flush eyes with clean water, holding eyelids apart for a minimum of 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eyes. Call Syngenta, a poison control centre or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

Skin Contact: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with running water for a minimum of 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

Inhalation: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

Ingestion: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control centre. If spontaneous vomiting occurs, have the victim lean forward with head down to avoid breathing in of vomitus.

Most Important Symptoms/Effects, Acute and Delayed:

Fatal or poisonous if swallowed.

May be fatal if swallowed and enters airway.

Toxic if inhaled.

Irritating to eyes and skin.

Vapour may cause drowsiness or dizziness.

May cause transient, usually less than 24 hours, itching, tingling, burning or numbness of exposed skin, called paresthesia.

Application of topical vitamin E may alleviate symptoms.

Indication of Immediate Medical Attention and Special Treatment:

There is no specific antidote.

Treat symptomatically.

Contains petroleum distillates, vomiting may cause aspiration pneumonia. If swallowed, perform gastric lavage, taking care to prevent aspiration of gastric contents.

Persons suffering from a temporary allergic reaction may respond to treatment with oral antihistamines or steroid creams and/or systemic steroids.

SECTION 5: FIRE FIGHTING MEASURES

Suitable (and Unsuitable) Extinguishing Media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist. Cool closed containers exposed to fire with water spray. Do not use a solid water stream as it may scatter and spread the fire.

Specific Hazards Arising from the Product: Class IIIA combustible liquid. Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion. Thermal decomposition products are toxic and may include hydrocarbons, ammonia, organic and acid halides, oxides of carbon, nitrogen and sulphur.

Special Protective Equipment and Precautions for Fire-Fighters: Wear full protective clothing and self-contained breathing apparatus. Evacuate non-essential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water run-off can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Control the spill at its source. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Use adequate ventilation and equipment and wear clothing as described in Section 8 and/or the product label.

Environmental Precautions: Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.

Methods and Materials for Containment and Cleaning Up: Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or seep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into a compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: Flammable liquid and vapour. Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours, dust or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Conditions for Safe Storage, Including Any Incompatibilities: Store in original container in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Refer to the product label for specific storage recommendations, including minimum storage temperature and freeze/thaw stability. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL AND/OR ON-FARM APPLICATIONS.

Control Parameters:

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
White mineral oil	Not established	5 mg/m ³ (mist); 10 mg/m ³ STEL	5 mg/m ³ TWA (mist)**; 10 mg/m ³ STEL**; 5 mg/m ³ TWA (ON/QC); 10 mg/m ³ STEL (ON/QC)	No	Not established
Petroleum solvent	Not established	Not established	50 mg/m ³ TWA*; 300 ppm TWA (AB/BC); Calculation required based on use application (BC/ON)	No	Not established
Lambda-cyhalothrin	Not established	Not established	0.04 mg/m ³ TWA (Dermal)***	No	Not established

* Recommended by Manufacturer

** Recommended by NIOSH

*** Syngenta Occupational Exposure Limit (OEL)

**** Recommended by AIHA (American Industrial Hygiene Association)

† Material listed in Ingredient Disclosure List under the Hazardous Products Act

Appropriate Engineering Controls: If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV (threshold limit value). Warehouses, production areas, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

Individual Protection Measures:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

Ingestion: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

Eyes: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Skin: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use a NIOSH certified respirator with any R, P or HE filter. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air purifying respirators may not provide adequate protection.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
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Appearance: Yellow liquid.
Formulation Type: Emulsifiable concentrate.
Physical State: Liquid.
Odour: Aromatic.
Odour Threshold: Not available.
pH: 4-6 (1% aqueous solution @ 25 °C).
Melting Point: Not applicable.
Freezing Point: Not available.
Initial Boiling Point and Boiling Range: Not available.
Flash Point: 75 °C (Pensky-Martens CC).
Evaporation Rate: Not available.
Flammability (solid/gas): Class IIIA (combustible liquid).
Lower Explosive Limit: Not available.
Upper Explosive Limit: Not available.
Vapour Pressure: Lambda-cyhalothrin: 1.60×10^{-9} mmHg @ 20 °C.
Vapour Density: Not available.
Relative Density: 0.91 g/mL @ 20 °C.
Solubility(ies): Lambda-cyhalothrin: 0.005 mg/L @ 20 °C, pH 7 (water).
Partition Coefficient (n-octanol water): Lambda-cyhalothrin: 7
Auto-Ignition Temperature: 335 °C.
Decomposition Temperature: Not available.
Viscosity: 493 mPa·s @ 20 °C.

Other Information: Not applicable.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical Stability: Stable under normal use and storage conditions.
Possibility of Hazardous Reactions: Class IIIA combustible liquid. Flammable liquid and vapour. Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back.
Conditions to Avoid: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Incompatible Materials: Oxidizing agents. Acids and alkaline materials.
Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion. Thermal decomposition products are toxic and may include hydrocarbons, ammonia, organic and acid halides, oxides of carbon, nitrogen and sulphur.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Dermal, inhalation, oral.

Symptoms of Acute Exposure: Fatal or poisonous if swallowed. May be fatal if swallowed and enters airway. Toxic if inhaled. Irritating to eyes and skin. Vapour may cause drowsiness and dizziness.

Potential Health Effects: May cause transient, usually less than 24 hours, itching, tingling, burning or numbness of exposed skin, called paresthesia.

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Moderately Acutely Toxic</u> Oral (LD50 Female Rat)	92.91 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u> Dermal (LD50 Rat)	> 2,000 mg/kg body weight
Inhalation:	<u>Moderately Acutely Toxic</u> Inhalation (LC50 Rat)	> 0.55 mg/L air – 4 hours
Eye Contact:	<u>Mildly Irritating (Rabbit)</u>	
Skin Contact:	<u>Moderately Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

Specific Target Organ Toxicity (STOT) Single Exposure:

Lambda-cyhalothrin: Reversible paresthesia (abnormal skin sensation).

Specific Target Organ Toxicity (STOT) Repeated Exposure:

Lambda-cyhalothrin: No adverse effect has been observed in chronic toxicity tests.

Carcinogenicity:

Lambda-cyhalothrin: Did not show carcinogenic effects in animal experiments.

Reproductive Toxicity:

Lambda-cyhalothrin: Did not show reproductive toxicity effects in animal experiments.

Mutagenicity:

Lambda-cyhalothrin: Did not show mutagenic effects in animal experiments.

Aspiration Hazard:

Lambda-cyhalothrin: Not classified as an aspiration hazard.

Other Toxicity Information:

Lambda-cyhalothrin: In humans, contact with exposed skin may cause temporary itching, tingling, burning or numbness, called paresthesia. The effect may result from splash, aerosol, hot vapour contact or transfer to the face from contaminated gloves and hands. This effect is transient, lasting up to 24 hours. Face and genital areas are especially susceptible to this effect.

Toxicity of Other Components:

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

- White mineral oil: Slight irritation of the skin, dryness or cracking after repeated dermal exposure may occur. If skin is not properly cleansed, pores may be clogged and result in oil acne or folliculitis. Inhalation of vapours or mists may cause respiratory irritation.
- Petroleum solvent: Repeated exposure may cause skin dryness or cracking. If swallowed, may be aspirated and cause lung damage. May be irritating to eyes, nose, throat and lungs. Breathing of high vapour concentrations may result in central nervous system (CNS) depression resulting in dizziness, light headedness, headache, nausea and loss of coordination.

SECTION 12: ECOLOGICAL INFORMATION

Eco-Acute Toxicity:

- Lambda-cyhalothrin:
 - Invertebrates (Water Flea) 48-hour LC₅₀/EC₅₀ 0.00036 ppm
 - Fish (Rainbow Trout) 96-hour LC₅₀/EC₅₀ 0.0024 ppm
 - Birds (8-day dietary – Bobwhite Quail) LC₅₀ > 5,300 ppm

Persistence & Degradability:

- Lambda-cyhalothrin: Moderately persistent in soil. Moderately persistent in water; partitions to sediment.

Bioaccumulation Potential:

- Lambda-cyhalothrin: BCF < 500; does not bioaccumulate.

Mobility in Soil:

- Lambda-cyhalothrin: Low mobility in soil.

- Other Adverse Effects:** Not applicable.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Methods:

- Waste from residues: Refer to the product label for specific disposal/recycling information.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.
- Contaminated packaging: Refer to the product label for specific disposal/recycling information.
Empty remaining contents
Triple rinse containers
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not reuse empty containers.

SECTION 14: TRANSPORT INFORMATION**TDG Classification – Road/Rail:**

Regulated.

Land Transport (TDG):

UN Number: UN 3352
Proper Shipping Name: Pyrethroid Pesticides, Liquid, Toxic (Lambda-cyhalothrin).
Transport Hazard Class: Class 6.1
Packing Group: PG III
Environmental Hazards: Toxic.

Water Transport – International (IMDG):

UN Number: UN 3352
Proper Shipping Name: Pyrethroid Pesticides, Liquid, Toxic (Lambda-cyhalothrin), Marine Pollutant.
Transport Hazard Class: Class 6.1
Packing Group: PG III
Environmental Hazards: Marine pollutant, toxic.

Air Transport (IATA-DGR):

UN Number: UN 3352
Proper Shipping Name: Pyrethroid Pesticides, Liquid, Toxic (Lambda-cyhalothrin).
Transport Hazard Class: Class 6.1
Packing Group: PG III
Environmental Hazards: Environmentally hazardous, toxic.

Special Precautions for User:

Not applicable.

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable.

SECTION 15: REGULATORY INFORMATION

There are Canada-specific environmental requirements for handling, use and disposal of this pest control product that are indicated on the product label.

Hazardous Products Act Information:

This product has been classified in accordance with the amended Hazardous Products Act and the Hazard Criteria of the Hazardous Products Regulations (HPR), and the SDS contains all the information required by the HPR.

Hazardous Products Act Information: WHMIS 2015 Classification

This product is exempt under WHMIS 2015.

Pest Control Products Act (PCPA) Registration No.: 24984

Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:

PCPA Label Hazard Communications:




Read the label and the pamphlet before using.

Keep out of reach of children.

Danger: Poison.

Eye Irritant and Skin Irritant.

Potential Skin Sensitizer.

PCPA Hazard on Label: Poison PCPA Precautionary Symbol:  PCPA Signal Word(s): PCPA Hazard Statement:	Poison Danger Not applicable.	GHS Hazard Classification: Acute Toxicity (Inhalation) – Category 3; Acute Toxicity (Oral) – Category 3 GHS Hazard Symbol:  GHS Signal Word: GHS Hazard Statement:	Acute Toxicity (Inhalation) – Category 3; Acute Toxicity (Oral) – Category 3 Danger H331 – Toxic if inhaled. H301 – Toxic if swallowed.
PCPA Hazard on Label: Eye Irritant PCPA Precautionary Symbol: PCPA Signal Word(s): PCPA Hazard Statement:	Eye Irritant Not applicable. Not applicable. Not applicable.	GHS Hazard Classification: Eye Irritation – Category 2B GHS Hazard Symbol: GHS Signal Word: GHS Hazard Statement:	Eye Irritation – Category 2B Not applicable. Warning H320 – Causes eye irritation.
PCPA Hazard on Label: Skin Irritant PCPA Precautionary Symbol: PCPA Signal Word(s): PCPA Hazard Statement:	Skin Irritant Not applicable. Not applicable.	GHS Hazard Classification: Skin Irritation – Category 2 GHS Hazard Symbol:  GHS Signal Word: GHS Hazard Statement:	Skin Irritation – Category 2 Warning H315 – Causes skin irritation.
PCPA Hazard on Label: Potential Skin Sensitizer PCPA Precautionary Symbol: PCPA Signal Word(s): PCPA Hazard Statement:	Potential Skin Sensitizer Not applicable. Not applicable. Not applicable.	GHS Hazard Classification: Not applicable. GHS Hazard Symbol: GHS Signal Word: GHS Hazard Statement:	Not applicable. Not applicable. Not applicable. Not applicable.

Allergens Contained in the Pest Control Product:

Not applicable.

NPRI Components:

White mineral oil.

Petroleum solvent, heavy aromatic.

SECTION 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant SDS. Hazardous properties of all ingredients have been considered in the preparation of this SDS. Read the entire SDS for the complete hazard evaluation of this product.

Full Text of Abbreviations:

AB – Province of Alberta

BC – Province of British Columbia

BCF – Bioconcentration factor

EC₅₀ – Effective concentration, 50%

GHS – Globally Harmonized System of Classification and Labeling of Chemicals

LC₅₀ – Lethal concentration, 50%LD₅₀ – Lethal dose, 50%

IARC – International Agency for Research on Cancer

IATA-DGR – International Air Transport Association

Dangerous Goods Regulations

IMDG – International Maritime Code for Dangerous Goods

NTP – National Toxicology Program

ON – Province of Ontario

OSHA – Occupational Safety & Health Administration

PEL – Permissible Exposure Limit

TDG – Transportation of Dangerous Goods

TLV – Threshold Limit Value

QC – Province of Quebec

SDS – Safety Data Sheet

WHMIS – Workplace Hazardous Materials Information System

Changes since last revision: Converted to SDS format.

Revision Date (Y-M-D): 2018-11-01

Supersedes Date (Y-M-D): 2017-12-31

Prepared by: Syngenta Canada Inc.

1-87-SYNGENTA (1-877-964-3682)

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END OF SAFETY DATA SHEET.

Container Label

MERGE® ADJUVANT

EMULSIFIABLE CONCENTRATE

A blend of surfactant with petroleum hydrocarbons for application with various herbicides

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENTS: Surfactant blend 50%
Solvent (petroleum hydrocarbons) 50%

REGISTRATION NO. 24702

PEST CONTROL PRODUCTS ACT

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT
1-800-454-2673**



WARNING

POISON

SKIN IRRITANT

NET CONTENTS: 4 L to 1000 L

READ THE LABEL AND BOOKLET BEFORE USING

SHAKE WELL BEFORE USING

KEEP OUT OF REACH OF CHILDREN

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, Ontario
L5R 4H1
1-877-371-2273

MERGE is a registered trade-mark of BASF Canada Inc.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. Do not take internally. Harmful if swallowed or absorbed through the skin.
3. Skin irritant. Avoid inhalation of vapour or spray mist and contact with eyes, skin or clothing.
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. Wear protective equipment and clothing including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long sleeved shirt, trousers and rubber boots.
6. If clothing becomes contaminated, remove and wash separately from household laundry before re-use.
7. Clean spray equipment thoroughly after use.
8. This product contains an aromatic petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia. Treat symptomatically.

STORAGE

1. Store in original tightly-closed container and do not allow water to be introduced to this container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store product in cool, dry, locked, well ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross contamination.
5. Product must be stored at temperatures above 5°C (40°F).

DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for any further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For Returnable-Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Booklet

MERGE® ADJUVANT

EMULSIFIABLE CONCENTRATE

A blend of surfactant with petroleum hydrocarbons for application with various herbicides

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENTS: Surfactant blend 50%
Solvent (petroleum hydrocarbons) 50%

REGISTRATION NO. 24702

PEST CONTROL PRODUCTS ACT

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT
1-800-454-2673**



WARNING

POISON

SKIN IRRITANT

NET CONTENTS: 4 L to 1000 L

READ THE LABEL AND BOOKLET BEFORE USING

SHAKE WELL BEFORE USING

KEEP OUT OF REACH OF CHILDREN

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, Ontario
L5R 4H1
1-877-371-2273

MERGE is a registered trade-mark of BASF Canada Inc.

DIRECTIONS FOR USE

MERGE Adjuvant is a blend of surfactant and petroleum hydrocarbons designed for use with various herbicide sprays. Refer to the herbicide label for detailed use instructions and restrictions.

MERGE Adjuvant can be used with the following herbicides:

Ares® SN
Armezon®
Eragon®
Facet® L

Heat® LQ
Amity 70 WDG
Odyssey® WDG Herbicide

Poast® Ultra Herbicide
Solo® WDG Herbicide

Product	Tank Mix	Crop(s)	Amount of MERGE Adjuvant	Water Volume (L/ha)	Weeds Controlled
Ares SN	NA	Clearfield Canola (including Clearfield Canola quality <i>Brassica juncea</i>)	0.5%	50 – 100	Labelled broadleaf and grass weeds
	Lontrel 360 OR Lontrel XC	Clearfield Canola	0.5%	50 – 100	Labelled broadleaf and grass weeds
Armezon Herbicide	Aatrex 480 OR Atrazine	Field corn	0.5%	100 – 200	Labelled broadleaf and grass weeds
	Atrazine + Frontier® Max	Field corn	0.25%	100 – 200	Labelled broadleaf and grass weeds
Eragon	NA	Barley, wheat (spring, winter, durum)	1 L/ha	100 – 200	Labelled broadleaf weeds
	Glyphosate	Corn (field, sweet), soybeans	1 L/ha	100 – 200	Labelled broadleaf weeds plus additional weeds
	Glyphosate + Pursuit® Herbicide	Soybeans	1 L/ha	100 – 200	Labelled broadleaf weeds plus additional weeds
Facet L	N/A	Wheat (spring and durum), spring barley, canary seed, canola (all varieties, including conventional, Clearfield ®, LibertyLink® and Roundup Ready®)	0.5 – 1 L/ha	100	Labelled weeds
	Liberty® 150 SN	LibertyLink Canola	0.5 – 1 L/ha	100	Enhanced and more consistent control of cleavers plus labelled weeds

Product	Tank Mix	Crop(s)	Amount of MERGE Adjuvant	Water Volume (L/ha)	Weeds Controlled
	Liberty 150 SN + Centurion	LibertyLink Canola	0.5 L/ha	100	Enhanced and more consistent control of cleavers and annual grasses plus labelled weeds
Heat LQ	NA	Barley, canary seed, chemfallow, chickpea Kabuli, corn (field, sweet), lentils, oats, peas (dried field), soybeans, wheat (spring, durum, winter)	0.5 – 1 L/ha	50 – 100	Labelled broadleaf weeds
	NA	Harvest Aid: canola (all types), dry common beans, flax, lentils (red lentil varieties only), mustard (all classes), peas (dried field), soybeans, sunflower	0.5 – 1 L/ha	200 ground; 50 aerial	Crop dry down
	N/A	Pre-harvest weed management: barley (spring, winter, malting), triticale, wheat (durum, spring, winter)	0.5 – 1 L/ha	100 – 200 ground; 50 aerial	Improved dry down of labelled weeds
	Glyphosate	Barley, canary seed, chemfallow, chickpeas, corn (field, sweet), oats, peas (dried field), lentils, wheat (spring, durum, winter), soybeans	0.5 – 1 L/ha	50 - 100	Labelled broadleaf weeds plus additional weeds

Product	Tank Mix	Crop(s)	Amount of MERGE Adjuvant	Water Volume (L/ha)	Weeds Controlled
	Glyphosate	Harvest Aid: canola (all types), dry common beans, flax, lentils (red lentil varieties only), mustard (all classes), peas (dried field), soybeans	0.5 – 1 L/ha	100 – 200	Crop dry down
	Glyphosate	Pre-harvest weed management: barley (spring, winter, malting), triticale, wheat (durum, spring, winter)	0.5 – 1 L/ha	100 – 200	Improved dry down of labelled weeds
Amity 70 WDG	NA	Clearfield Canola (including canola quality <i>Brassica juncea</i>)	0.5%	100	Labelled broadleaf and grass weeds
	Lontrel Dry	Clearfield Canola	0.5%	100	Labelled broadleaf and grass weeds
Odyssey WDG Herbicide	NA	Field peas, fenugreek (seed uses only), Clearfield Lentils, soybeans (Western Canada only), seedling and established alfalfa grown for seed, bird's foot trefoil (seed production)	0.5%	50 – 100	Labelled broadleaf and grass weeds
Poast Ultra Herbicide	NA	Various crops as labelled	0.25 – 2.0 L/ha	25 – 200	Labelled grass weeds
	Buctril® M	Flax (including low linolenic acid varieties)	0.5 – 2.0 L/ha	50 – 200	Labelled weeds plus additional weeds as listed
	Logic® M				
	Lontrel 360				
	Lontrel 360 + MCPA Ester				
	MCPA Ester				
	Muster® + Lontrel 360	Canola (rapeseed)	0.5 – 2.0 L/ha	50 – 200	Labelled weeds plus additional weeds as listed
	Lontrel 360				
	Muster				
	Pursuit® 240	Dry peas	1.0 L/ha	50 – 100	Labelled weeds plus additional weeds as listed
Liberty 150 SN	Glufosinate tolerant canola (e.g. canola varieties with the LibertyLink symbol)	1.0 L/ha	50 – 100	Labelled weeds plus additional weeds as listed	
Solo WDG Herbicide	NA	Clearfield Sunflowers, Clearfield Lentils	0.5%	100	Labelled broadleaf and grass weeds

MIXING

1. Thoroughly clean the sprayer prior to use. **For appropriate cleaning instructions, refer to the label of the product sprayed previously.**
2. Fill spray tank half full with clean water. Start agitation system.
3. Add the correct amount of herbicide(s) and MERGE Adjuvant and continue filling.
4. After filling, continue agitation.

SPRAYER CLEAN-OUT

Follow the following steps and consult each herbicide label used:

1. Immediately after use, thoroughly clean the sprayer by completely filling spray tank with clean water while adding 1 litre of ammonia (containing 3% ammonia) per 100 litres of water. Agitate to mix water and ammonia. Reduce amount of ammonia added proportionally if higher concentrations of ammonia are used. Flush solution through boom and nozzles and then add more water to completely refill the tank. Agitate the solution for at least 15 minutes and then flush the boom and nozzles until the spray tank is empty.
2. Remove the nozzles and screens and clean separately in a bucket containing a cleaning agent and water.
3. Fill spray tank half full with clean water.
4. Agitate to thoroughly rinse the tank and flush the water through the boom.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. Do not take internally. Harmful if swallowed or absorbed through the skin.
3. Skin irritant. Avoid inhalation of vapour or spray mist and contact with eyes, skin or clothing.
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. Wear protective equipment and clothing including goggles or face shield, gloves (rubber, PVC, neoprene or nitrile), hat, long sleeved shirt, trousers and rubber boots.
6. If clothing becomes contaminated, remove and wash separately from household laundry before re-use.
7. Clean spray equipment thoroughly after use.

8. This product contains an aromatic petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia. Treat symptomatically.

STORAGE

1. Store in original tightly-closed container and do not allow water to be introduced to this container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store product in cool, dry, locked, well ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross contamination.
5. Product must be stored at temperatures above 5°C (40°F).

DISPOSAL

For Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for any further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For Returnable-Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

Clearfield, ODYSSEY and PURSUIT are registered trade-marks of BASF Agrochemical Products B.V., FRONTIER is a registered trademark of BASF Corporation and ARMEZON, ERAGON, FACET, HEAT, POAST and SOLO are registered trade-marks of BASF SE, all used with permission by BASF Canada Inc.

All other products listed are trademarks or registered trademarks of their respective companies.

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(30059253/SDS_CPA_CA/EN)

1. Product and Company Identification

Company

BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1, CANADA

24 Hour Emergency Response Information

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

PCP # 21058/24702

2. Hazards Identification

Emergency overview

WARNING:
POISON.
Skin Irritant
KEEP OUT OF REACH OF CHILDREN.
HARMFUL IF SWALLOWED.
HARMFUL IN CONTACT WITH SKIN.
This product is a skin irritant.
COMBUSTIBLE LIQUID.
Avoid inhalation of mists/vapours.
Avoid contact with the skin, eyes and clothing.
Wash thoroughly after handling.

State of matter: liquid
Colour: pale straw yellow
Odour: faintly aromatic

Potential health effects**Acute toxicity:**

Slightly toxic after single ingestion. Slightly toxic after short-term inhalation. Slightly toxic after short-term skin contact.

Irritation / corrosion:

Irritating to eyes and skin.

Sensitization:

There is no evidence of a skin-sensitizing potential.

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3. Composition / Information on Ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Hazardous ingredients</u>
91-20-3	>= 3.0 - <= 7.0 %	naphthalene

4. First-Aid Measures

General advice:

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary.

If on skin:

Rinse skin immediately with plenty of water for 15 - 20 minutes.

If in eyes:

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

If swallowed:

Immediately rinse mouth and then drink plenty of water, do not induce vomiting, seek medical attention. Do not induce vomiting due to aspiration hazard.

Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Note to physician

Antidote:	No known specific antidote.
Treatment:	Treat symptomatically.

5. Fire-Fighting Measures

Flash point:	65.5 °C	(closed cup)
Lower explosion limit:		not determined
Upper explosion limit:		not determined

Suitable extinguishing media:

water spray, dry powder, foam, carbon dioxide

Hazards during fire-fighting:

carbon monoxide, carbon dioxide, nitrogen oxides
The substances/groups of substances mentioned can be released in case of fire.

Protective equipment for fire-fighting:

Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

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6. Accidental release measures

Personal precautions:

Do not breathe vapour/spray. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Cleanup:

For small amounts: Pick up with suitable absorbent material. Dispose of absorbed material in accordance with regulations.

For large amounts: Dike spillage. Pump off product.

7. Handling and Storage

Handling

General advice:

Provide good ventilation of working area (local exhaust ventilation if necessary).

Protection against fire and explosion:

The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

Storage

General advice:

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination.

Storage incompatibility:

General advice: Segregate from foods and animal feeds.

Temperature tolerance

Protect from temperatures below: 5 °C

Changes in the properties of the product may occur if substance/product is stored below indicated temperature for extended periods of time.

Protect from temperatures above: 40 °C

Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

8. Exposure Controls and Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Components with workplace control parameters

naphthalene	OSHA	PEL 10 ppm 50 mg/m3 ;
	ACGIH	TWA value 10 ppm ; STEL value 15 ppm ; Skin Designation ;
		The substance can be absorbed through the skin.

Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

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Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Remove contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	faintly aromatic	
Odour threshold:	No data available.	
Colour:	pale straw yellow	
pH value:		not applicable, not soluble
Freezing point:		Unspecified
Boiling range:	> 100 °C	The statements are based on the properties of the individual components.
Density:	0.934 g/cm ³	(20 °C)
Vapour density:		not determined
Solubility in water:		emulsifiable

10. Stability and Reactivity

Conditions to avoid:

Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures.

Substances to avoid:

strong oxidizing agents

Hazardous reactions:

The product is chemically stable.
No hazardous reactions when stored and handled according to instructions.

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

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Thermal decomposition:

Possible thermal decomposition products:

carbon monoxide, carbon dioxide

Stable at ambient temperature. If product is heated above decomposition temperature, toxic vapours will be released.

11. Toxicological information

Acute toxicity

Oral:

Information on: Alcohols, C16-18, ethoxylated propoxylated

Type of value: LD50

Species: rat

Value: > 2,000 mg/kg

Information on: solvent naphtha

Type of value: LD50

Species: rat

Value: > 7,000 mg/kg

Inhalation:

Information on: Alcohols, C16-18, ethoxylated propoxylated

Type of value: LC50

Species: rat

Value: > 0.25 - < 1 mg/l

Exposure time: 4 h

An aerosol was tested.

Information on: solvent naphtha

Type of value: LC50

Species: rat

Value: > 4 mg/l

Exposure time: 4 h

Dermal:

Information on: Alcohols, C16-18, ethoxylated propoxylated

Value: > 4,000 mg/kg

Information on: solvent naphtha

Type of value: LD50

Species: rat

Value: > 3,160 mg/kg

Irritation / corrosion:

Skin:

Information on: Alcohols, C16-18, ethoxylated propoxylated

Species: rabbit

Result: non-irritant

Method: BASF-Test

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Information on: solvent naphtha
Species: rabbit
Result: moderately irritating

Eye:

Information on: Alcohols, C16-18, ethoxylated propoxylated
Species: rabbit
Result: non-irritant
Method: BASF-Test

Information on: solvent naphtha
Species: rabbit
Result: Slightly irritating.

Sensitization:

Information on: solvent naphtha
Buehler test
Species: guinea pig
Result: Non-sensitizing.

Genetic toxicity

Information on: solvent naphtha
No mutagenic effect was found in various tests with bacteria and mammalian cell culture. The substance was not mutagenic in studies with mammals.

12. Ecological Information

Fish

Information on: Alcohols, C16-18, ethoxylated propoxylated
Acute:
Oncorhynchus mykiss/LC50: 0.1 - 1 mg/l

Information on: solvent naphtha
Acute:
OECD 203; ISO 7346; 84/449/EEC, C.1 semistatic
Oncorhynchus mykiss/LC50 (96 h): 18 mg/l
The statement of the toxic effect relates to the analytically determined concentration. The product has low solubility in the test medium. An aqueous dispersion has been tested.

Aquatic invertebrates

Information on: Alcohols, C16-18, ethoxylated propoxylated
Acute:
EC50 (48 h): 0.1 - 1 mg/l

Information on: solvent naphtha
Acute:
OECD Guideline 202, part 1 static
Daphnia magna/EC50 (48 h): 1.4 - 21 mg/l
The product has low solubility in the test medium. An aqueous dispersion has been tested.

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Aquatic plants

Information on: Alcohols, C16-18, ethoxylated propoxylated

Toxicity to aquatic plants:

EC50 (72 h): 0.1 - 1 mg/l

Information on: solvent naphtha

Toxicity to aquatic plants:

OECD Guideline 201 green algae/EC50 (72 h): 3.7 - 8.3 mg/l

Analogous: Assessment derived from products with similar chemical character.

The product has low solubility in the test medium. An aqueous dispersion has been tested.

13. Disposal considerations

Waste disposal of substance:

See product label for disposal and recycling instructions.

Container disposal:

Rinse the container or liner as needed for disposal. Add rinsate to spray tank. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. Consult the product label for additional details.

14. Transport Information

Land transport

TDG

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Hazard class:	9
Packing group:	III
ID number:	UN 3082
Hazard label:	9, EHSM
Marine pollutant:	YES
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains SOLVENT NAPHTHA, FATTY ALCOHOL ETHOXYLATE 39%)

Air transport

IATA/ICAO

Hazard class:	9
Packing group:	III
ID number:	UN 3082
Hazard label:	9, EHSM
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains SOLVENT NAPHTHA, FATTY ALCOHOL ETHOXYLATE 39%)

15. Regulatory Information

Federal Regulations

Registration status:

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Chemical	DSL, CA	blocked / not listed
Crop Protection	DSL, CA	released / listed

WHMIS does not apply to this product.

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

16. Other Information

Recommended use: adjuvant

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:

BASF NA Product Regulations
msds@basf.com
BASF HOTLINE (800) 454 – COPE (2673)
MSDS Prepared on: 2012/04/26

END OF DATA SHEET

2018-5105
2018-11-01

GROUP	10	HERBICIDE
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MPOWER VIGOR

HERBICIDE AND CROP DESICCANT

SOLUTION

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF
BRITISH COLUMBIA ONLY**

WARNING



POISON

COMMERCIAL

WARNING – SKIN and EYE IRRITANT

ACTIVE INGREDIENT: glufosinate ammonium 150 g/L

**REGISTRATION NUMBER 33267
PEST CONTROL PRODUCTS ACT**

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

Distributed by:

NewAgco Inc.
320 - 22nd Street East
Saskatoon, Saskatchewan
Canada
S7K 0H1
Contact number: 1-877-362-3276

NET CONTENTS: 10, 20, 110, 200 and BULK

PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN. Harmful or fatal if absorbed through the skin. Harmful if swallowed. This product may cause eye irritation. **DO NOT** get in eyes, on skin or on clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

- Workers must wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes, and goggles during mixing, loading, application, clean-up and repair.
- Wear a respirator during mixing, loading and application. If used in a tank mix, follow the most protective PPE directions of the products used.
- Workers should not enter treated fields within 24 hours of treatment. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

- Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.** Keep in original container during storage. Do not contaminate water supply, ponds, lakes, streams and irrigation ditches by direct application, spray drift or when cleaning and rinsing spray equipment or containers.

- If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

CAUTION: Do not mix MPOWER VIGOR with pesticides, fertilizers or any other chemical additives unless recommended on this label.

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under **DIRECTIONS FOR USE.** Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.** To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats through direct application, disposal of waste or cleaning equipment.

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

Ingestion: If swallowed, call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

Eye Contact: If in eyes, hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Skin or Clothing Contact: If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

Inhalation: If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice

TOXICOLOGICAL INFORMATION: Treat symptomatically. Medical personnel should contact CANUTEC collect at 1-613-996-6666 or *666 24 hours a day.

STORAGE: CANNOT be stored below freezing. If stored for one year or longer, shake well before using. Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs. Do not use or store in or around the home. Keep in original container during storage.

DISPOSAL: Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container Disposal: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Disposal of Unused, Unwanted Product: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Disposal of Unused Spray Solution: If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

Transportation of Dangerous Goods Classification: PESTICIDES, LIQUID, TOXIC, N.O.S. (GLUFOSINATE-AMMONIUM), CLASS 6.1, UN2902, P.G. III

GROUP	10	HERBICIDE
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MPOWER VIGOR

HERBICIDE AND CROP DESICCANT

SOLUTION

**FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF
BRITISH COLUMBIA ONLY**

WARNING



POISON

COMMERCIAL

WARNING – SKIN and EYE IRRITANT

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NewAgco Inc.
320 - 22nd Street East
Saskatoon, Saskatchewan
Canada
S7K 0H1
Contact number: 1-877-362-3276

NET CONTENTS: 10, 20, 110, 200 and BULK

GENERAL INFORMATION

GROUND APPLICATION

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Apply MPOWER VIGOR in a minimum of 110 litres of water per hectare at a pressure of 275 kPa and at a ground speed of 6 to 8 km/h. If check valves are used, apply at 310 kPa. The use of 80° or 110° flat fan nozzles is highly recommended for optimum spray coverage and canopy penetration.

For desiccation uses only, where crop canopy is dense, or weed growth is heavy, better spray coverage will be achieved with higher spray volumes. Under these conditions, apply 170-220 litres of water per hectare.

- DO NOT USE FLOOD JET NOZZLES, CONTROLLED DROPLET APPLICATION EQUIPMENT OR AIR-ASSISTED SPRAY EQUIPMENT.

- UNIFORM, THOROUGH SPRAY COVERAGE IS IMPORTANT TO ACHIEVE CONSISTENT CROP DESICCATION AND WEED CONTROL.

Application of the spray at a 45° angle forward will result in better spray coverage. Follow directions elsewhere on the label for the correct rate and timing of application.

DO NOT apply when winds exceed 16 km/h when using open boom sprayers. Do not apply when winds exceed 25 km/h when using hooded sprayers.

AERIAL APPLICATION

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wingspan or rotorspan.

Ensure thorough coverage of foliage. Consult nozzle manufacturer's recommendation for spray pressures for specific nozzles.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, a long-sleeved shirt, long pants, coveralls, shoes plus socks, and goggles or face shield during mixing/loading, cleanup and repair. Applicators must wear long-sleeved shirt, long pants, and shoes plus socks. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

EXERCISE EXTREME CAUTION DURING THE AERIAL APPLICATION OF ANY INSECTICIDE, HERBICIDE OR FUNGICIDE. Drift of pesticides is not always visible with the human eye. Small droplets may drift into sensitive areas without obvious signs of danger. **FOLLOW THESE DIRECTIONS PRECISELY!**

When applying MPOWER VIGOR by aircraft, uniform spray coverage is essential. Applicators are required to use the correct combination of spray nozzle tips, nozzle placement and spray pressures, which will provide a COARSE droplet size distribution, with a volume mean diameter greater than 350 microns. **DO NOT USE RAINDROP NOZZLES.** To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Desiccation Use Only Water Volume Range: Apply MPOWER VIGOR in 33-55 litres of water per hectare. Where crop canopy is dense, or weed growth is heavy, better spray coverage will be achieved with higher spray volumes. Follow directions elsewhere on the label for the correct rate and timing of application.

Post-emergent Use in Glufosinate Ammonium Tolerant Canola Water Volume: Apply MPOWER VIGOR in a minimum of 55 L/ha of water only.

Aerial drift is increased under certain meteorological conditions. Do not apply MPOWER VIGOR by aircraft when the wind speed is greater than 12 km/h.

For the protection of non-target habitats overspray or drift to sensitive habitats should be

avoided.

HARVEST AID – DESICCATION (PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY)

MPOWER VIGOR may be used as a harvest aid (desiccant) in the listed crops. MPOWER VIGOR will also desiccate weeds present in the field at application.

Desiccation of crops and weeds will be best when environmental conditions are favourable (warm temperatures, good moisture conditions, high humidity). The speed of action of MPOWER VIGOR is influenced by environmental factors. At cool temperatures (below 10°C), poor moisture and low humidity, speed of action may be reduced. Generally, visual symptoms appear 2 to 4 days after application.

For best results, apply to emerged, young, actively growing weeds. Weeds that emerge after application will not be controlled.

MPOWER VIGOR will have an effect on weeds that are larger than the recommended leaf stage; however speed of activity and control may be reduced.

When a rate range is given the higher rate should be utilized:

- 1) when crop or weed growth is dense.
- 2) when environmental conditions are cool and dry.

If rainfall occurs within 4 hours of application, effectiveness may be reduced.

MPOWER VIGOR is a non-selective herbicide. Avoid contact with desirable plants either from direct application or from spray drift as severe damage may occur.

MPOWER VIGOR works primarily as a contact herbicide. Thorough coverage of the plant tissue to be desiccated or controlled is essential.

Grain and meal from treated crops can be fed to livestock.

DO NOT graze or feed other portions of the treated crop to livestock; there are not sufficient data to support such use.

MIXING INSTRUCTIONS

MPOWER VIGOR must be applied with properly calibrated clean equipment.

MPOWER VIGOR is specially formulated to mix readily in water. Prior to adding MPOWER VIGOR to the spray tank, ensure that the spray tank is thoroughly clean (see "CLEANING INSTRUCTIONS").

1. Fill tank one-half full of clean water prior to adding MPOWER VIGOR.
2. Add the correct amount of MPOWER VIGOR.

3. Add the remaining amount of water, begin agitation, and spray out immediately.

NOTE: Ensure that all circuits (pipes, booms, etc.) have the correct MPOWER VIGOR /water concentration before application is started.

NOTE: The addition of an anti-foaming agent may reduce foaming, especially when using soft water.

CLEANING INSTRUCTIONS

Before and after using MPOWER VIGOR always complete a thorough cleaning of the spray tank, lines and filter. Spray equipment should be thoroughly rinsed using a strong detergent solution.

MPOWER VIGOR MAY BE USED AS A DESICCANT IN THE FOLLOWING CROPS:

- LENTILS
- POTATOES
- ALFALFA (**Grown for Seed**)

MPOWER VIGOR will also desiccate weeds present in the field at application (Wild Buckwheat may not be completely desiccated).

LENTILS

DO NOT APPLY TO LENTILS GROWN FOR SEED; THERE ARE NOT SUFFICIENT DATA TO SUPPORT SUCH USE.

Apply MPOWER VIGOR at 2-2.7 litres of product per hectare. Apply when the crop is in the 40- 60% pod turn (yellow to brown) stage. Use the higher rate when the crop canopy is dense and/or there are high populations of weeds present at application. DO NOT harvest treated crop within 9 days after application.

MPOWER VIGOR will provide assist in lentil plant drydown to facilitate straight combining, reducing the risks associated with adverse weather affecting the windrowed crop.

POTATOES

DO NOT APPLY TO POTATOES GROWN FOR SEED STOCK.
DO NOT HARVEST THE TREATED CROP WITHIN 9 DAYS AFTER APPLICATION.

Apply MPOWER VIGOR at 3 litres of product per hectare. Apply approximately 14-21 days prior to expected harvest. Desiccation of crops and weeds will be more rapid under warmer and drier conditions.

MPOWER VIGOR may be applied to promote uniform drydown of an unevenly maturing crop and will allow for planning of harvest timing. Desiccation of vines and weeds will facilitate mechanical harvesting.

ALFALFA (Grown for Seed)

Apply at 50-75% pod turn (brown) stage. Apply MPOWER VIGOR at 2.7 L/ha of product. Do not apply more than once per year.

POST EMERGENT USE

CANOLA - PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA ONLY

MPOWER VIGOR is registered for aerial and ground application to glufosinate ammonium tolerant Canola varieties or hybrids [example: varieties or hybrids labelled with LibertyLink®] grown in the Prairie Provinces and Interior of British Columbia only.

- To assure crop safety and optimal herbicide performance, only use MPOWER VIGOR on glufosinate ammonium tolerant (i.e., LibertyLink) Canola grown from certified seed.
- MPOWER VIGOR is not registered for use on other glufosinate ammonium tolerant crops.
- Application of MPOWER VIGOR to non-tolerant Canola varieties or hybrids or other non-tolerant crops will result in severe crop injury or death of the crop.
- Apply MPOWER VIGOR from the cotyledon stage up until, but prior to, early bolting stage of Canola.
- Slight discoloration of the Canola may be visible after application. This effect is temporary and will not influence crop growth, maturity or yield.
- For hybrid seed production - Two applications are required to remove the segregating wild type plants. The first application should occur when the Canola is in the 2-4 leaf stage, the second application when the Canola plants are in the 4-6 leaf stage and the third application, if necessary, may be applied to the Canola up until, but prior to, the bolting stage. All applications of MPOWER VIGOR for hybrid seed production should be made at 3.33 L/ha.
- DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

SUSCEPTIBLE WEEDS: MPOWER VIGOR has an effect on all weeds and crops except for those crops which are developed to be tolerant to applications of MPOWER VIGOR. The following weeds are susceptible to application of MPOWER VIGOR. Best control will be obtained when MPOWER VIGOR is applied in the recommended leaf stages.

WEED	RECOMMENDED WEED LEAF STAGE	RATE
		1.33 L/ha
Cow Cockle	4	
Green Foxtail	6 (Maximum 3 tillers)	

WEED	RECOMMENDED WEED LEAF STAGE	RATE 2 L/ha
Barnyard Grass	4	
Lady's Thumb	6	
Lamb's-quarters	6	
Russian Thistle	Up to 8 cm height	
Smartweed	6	
Stinkweed	8	
Volunteer Flax	Up to 6 cm height	
Wild Mustard	5	

WEED	RECOMMENDED WEED LEAF STAGE	RATE 2.67 L/ha
Canada Thistle ¹	Up to 10 cm height	
Common Chickweed	4 (Leaf Pairs)	
Hemp-nettle	3 (Leaf Pairs)	
Kochia	Up to 8 cm height	
Perennial Sow Thistle	8	
Quackgrass ¹	4	
Redroot Pigweed	4	
Round-leaved Mallow	4	
Scentless Chamomile	Up to 10 cm height	
Shepherd's-purse	6	
Volunteer Barley ²	4 (Maximum 2 tillers)	
Volunteer Wheat	4 (Maximum 2 tillers)	
Wild Buckwheat	3	

WEED	RECOMMENDED WEED LEAF STAGE	RATE 3.33 L/ha
Cleavers	2 (Whorls)	
Dandelion	1-15 cm rosette	
Flixweed	Up to 10 cm height	
Hemp-nettle	4 (Leaf Pairs)	
Quackgrass ³	4	
Stork's Bill	3	
Wild Oats	4 (Maximum 2 tillers)	

WEED	RECOMMENDED WEED LEAF STAGE	RATE 3.33 L/ha
Heavy Populations		
Canada Thistle ¹	Up to 10 cm height	
Quackgrass ¹	4	
Volunteer Barley ²	4 (Maximum 2 tillers)	
Volunteer Wheat	4 (Maximum 2 tillers)	
Wild Buckwheat	3	

WEED	RECOMMENDED WEED LEAF STAGE	RATE 4 L/ha
Canada Thistle ⁴	Up to 10 cm height	
Quackgrass ⁵	4	

- ¹ Top Growth Suppression Only
² Suppression Only
³ Improved Top Growth Control
⁴ Better Top Growth Suppression
⁵ Season Long Control for Heavy Populations

SECOND APPLICATION - CANOLA

- A second application of MPower VIGOR can be made to canola treated initially with up to 4 L/ha if new weed germination or growth is present.
- A first application of up to 4 L/ha may be followed by a second application of up to 3.33 L/ha, OR A first application of up to 3.33 L/ha may be followed by a second application of up to 4 L/ha.
- **Do not apply more than a total of 7.33 L/ha per year.**
- Apply when the new weed growth is in the correct leaf stage and up until, but prior to, the bolting stage of Canola.

THIRD APPLICATION - CANOLA: FOR HYBRID SEED PRODUCTION ONLY

- Three applications of MPower VIGOR, each at 3.33 L/ha, may be required for hybrid seed production. The third application must occur prior to bolting of the Canola crop.
- For best results, apply to emerged, young, actively growing weeds. Weeds that emerge after application will not be controlled.
- MPower VIGOR will have an effect on weeds that are larger than the recommended leaf stage, however speed of activity and control may be reduced.

TANK MIXES

- Do not tank mix MPower VIGOR with herbicides, fertilizers or chemical additives unless recommended on this label.
- Consult the label of the tank mix partner for further directions for use, restrictions and precautions. Tank mix partners may have additional restrictions for leaf staging.
- For enhanced activity MPower VIGOR may be tank mixed with the following products.

CANOLA

TANK MIX PRODUCT	RATE	DIRECTIONS
Centurion® or Select®	63 mL/ha	For control of Volunteer Barley and Wild Oats, apply MPower VIGOR at a rate of 2.67 – 4.0 L/ha plus Centurion or Select at 63 mL/ha with adjuvant as recommended on the Centurion or Select label. Apply when the weeds are in the 1-4 leaf stage with a maximum of 2 tillers.

Mixing Instructions

- MPower VIGOR must be applied with properly calibrated, clean equipment.
- MPower VIGOR is specially formulated to mix readily in water.
- Prior to adding MPower VIGOR to the spray tank, ensure that the spray tank is thoroughly clean (see "CLEANING INSTRUCTIONS")
 1. Fill the tank three-quarters full with clean water.
 2. Add the correct amount of MPower VIGOR.
 3. Add the remaining amount of water, begin agitation, and spray out immediately.

TANK-MIXES:

- When using a tank-mix partner always consult the respective product label for further precautionary and application information.

MPower VIGOR and CENTURION or SELECT: Glufosinate Ammonium Tolerant Canola only

When tank mixing MPower VIGOR and CENTURION or SELECT, always add AMIGO adjuvant to the tank first, then add MPower VIGOR to the tank followed by the CENTURION or SELECT.

The addition of an anti-foaming agent may reduce foaming, especially when using soft water.

1. Thoroughly clean the sprayer by flushing the system with water containing detergent

2. Fill clean spray tank half full with clean water. Start agitation system.
3. Add the correct amount of AMIGO. Continue to agitate until AMIGO is thoroughly mixed.
4. STOP agitation. Add the required amount of MPower VIGOR to the spray tank. Start agitation system.
5. Add the correct amount of CENTURION or SELECT along with the remaining amount of water necessary to fill the spray tank.
6. Continue to agitate or run the by-pass system, and spray out immediately.
7. After any break in the spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to remix the spray materials. Do not allow the mixture to sit overnight.
8. If an oil film starts to build up in the tank, drain it and clean tank with strong detergent solution.
9. Immediately after use, thoroughly clean the sprayer by flushing the system with water containing detergent

CLEANING INSTRUCTIONS

Before and after using MPOWER VIGOR always complete a thorough cleaning of the spray tank, lines and filter. Spray equipment should be thoroughly rinsed using a strong detergent solution.

Plant-back Intervals:

- 70 days for buckwheat, barley, millet, oats, rye, sorghum, triticale and wheat.
- 120 days for all other crops except field corn, canola and soybeans, dry common beans (not grown for seed), alfalfa, carrot, lettuce, onion and potato.

Livestock Feeding and Preharvest Intervals

LIVESTOCK FEEDING:

Canola:

- Grain and meal from treated crop can be fed to livestock.
- Do not graze the treated crop or cut for hay; sufficient data are not available to support such use.

PREHARVEST INTERVALS:

Canola:

- When MPower VIGOR is tank mixed with Centurion or Select, observe a PHI of 60 days from the date of treatment (or last treatment when a second application has been made).

Buffer Zones:

Use of the following spray methods or equipment DO NOT require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:		
		Freshwater Habitat of Depths:		Terrestrial Habitat
		Less than 1 m	Greater than 1 m	
Field sprayer	Alfalfa Lentils Potato	1	0	1
	Canola	1	0	1
Aerial (fixed wing and rotary)	Alfalfa Lentils Potato	1	0	20
	Canola	1	0	30

PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN. Harmful or fatal if absorbed through the skin. Harmful if swallowed. This product may cause eye irritation. DO NOT get in eyes, on skin or on clothing. Avoid breathing spray mist. Wash thoroughly after using and before eating, drinking or smoking.

- Wear protective clothing including a long sleeved shirt, long pants, goggles, chemical resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair.
- Wear a respirator during mixing, loading and application.
- If used in a tank mix, follow the most protective PPE directions of the products used.
- Workers should not enter treated fields within 24 hours of treatment. Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.
- Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
- Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.** Keep in original container during storage. Do not contaminate water supply, ponds, lakes, streams and irrigation ditches by direct application, spray drift or when cleaning and rinsing spray equipment or containers.

- If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

CAUTION: Do not mix MPOWER VIGOR with pesticides, fertilizers or any other chemical additives unless recommended on this label.

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under **DIRECTIONS FOR USE**. **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats through direct application, disposal of waste or cleaning equipment. Avoid spray drift to susceptible plants and **USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES**. To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

CANNOT be stored below freezing. If stored for one year or longer, shake well before using. Store the tightly closed container away from feeds, seeds, fertilizers, plants and foodstuffs. Do not use or store in or around the home. Keep in original container during storage.

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

Ingestion: If swallowed, call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

Eye Contact: If in eyes, hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Skin or Clothing Contact: If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

Inhalation: If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION: Treat symptomatically. Medical personnel should contact CANUTEC collect at 1-613-996-6666 or *666, 24 hours a day.

DISPOSAL Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container Disposal: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Disposal of Unused, Unwanted Product: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Disposal of Unused Spray Solution: If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, away from water supplies, ditches, and irrigation canals.

RESISTANCE MANAGEMENT

For resistance management, MPOWER VIGOR is a Group 10 herbicide. Any weed population may contain or develop plants naturally resistant to MPOWER VIGOR and other Group 10 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of MPOWER VIGOR or other Group 10 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields

by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact NewAgco Inc. at 1-877-362-3276.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

FOR MORE INFORMATION CONTACT:

NewAgco Inc.

320-22nd Street East

Saskatoon, Saskatchewan

Canada

S7K 0H1

Contact number: 1-877-362-3276

Transportation of Dangerous Goods Classification: PESTICIDES, LIQUID, TOXIC, N.O.S. (GLUFOSINATE-AMMONIUM), CLASS 6.1, UN2902, P.G. III

SAFETY DATA SHEET

Product Name: MPower Vigor 150 Herbicide

Issue Date: Feb 22, 2020

SECTION 1: Product and Company Identification

Product Name:	MPower Vigor 150 Herbicide
Chemical Type:	Herbicide
Restrictions on use:	See product label for restrictions
Pest Control Products (PCP) Act Registration No.:	33267
Supplier information:	
AgraCity Crop and Nutrition Ltd	Tel: 1-844-269-3276
320-22 nd Street East, Saskatoon, Saskatchewan Canada S7K0H1	
Emergency Phone:	Call CANUTEC collect at 1-613-996-6666 or *666 from a cellular

SECTION 2: HAZARDS IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015)

Flammable liquids: **Category 3 - Flammable liquid and vapour**

Health: Acute toxicity:

Oral (**category 4**) – harmful if swallowed.

Dermal (**category 4**) –harmful in contact with skin.

Inhalation (**category 4**) – harmful if inhaled.

Skin irritation (**category 3**) – causes mild skin irritation.

Serious eye damage / eye irritation (**category 2b**) – causes eye irritation.



Signal word: **WARNING POISON**

PHYSICAL PROPERTIES:

Appearance: Blue liquid

Odor: Aromatic

PRECAUTIONARY STATEMENTS

General:

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

Read label before use.

Avoid breathing fumes, mist, vapors, or spray.

Wash hands, face, and other affected areas thoroughly after handling.

SAFETY DATA SHEET

Product Name: MPower Vigor 150 Herbicide

Issue Date: Feb 22, 2020

Do not eat, drink, or smoke when using this product.

Use only outdoors or in a well ventilated area.

Wear protective gloves / protective clothing / eye protection / face protection.

Avoid release to the environment.

Response:

IF SWALLOWED: Immediately call a POISON CENTER/doctor/ physician. **Do NOT** induce vomiting.

IF EXPOSED OR CONCERNED: Get medical advice / attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. **IF EYE IRRITATION PERSISTS:** Get medical advice/ attention.

IN CASE OF FIRE: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Store locked up. Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local regulation.

PHYSICAL OR CHEMICAL HAZARDS COMBUSTIBLE. Do not use or store near heat or open flame.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NO.	W/W%
Glufosinate ammonium	77182-82-2	15
Alkylethersulfate, sodium salt	68891-38-3	30
1-Methoxy-2-propanol	107-98-2	10
other proprietary ingredients		45

SECTION 4: FIRST AID MEASURES

IF SWALLOWED, call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF IN EYES, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

SAFETY DATA SHEET

Product Name: MPower Vigor 150 Herbicide

Issue Date: Feb 22, 2020

IF INHALED, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: This product contains PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia. High concentrations of MCPA may cause severe irritation to the eyes.

Symptoms of overexposure to MCPA could include slurred speech, twitching, jerking and spasms, drooling, low-blood pressure and unconsciousness. Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

FLASH POINT: >55 °C

EXTINGUISHING MEDIA: For small fire: dry chemical powder, water spray carbon dioxide. For large fire: foam, water fog, water spray.

SPECIAL EXPOSURE HAZARDS: Flashback may occur along vapor trail.

FIRE AND EXPLOSION HAZARDS: Dangerous gases are evolved in the event of a fire.

FIRE FIGHTING PROCEDURES: Fight fire from a safe distance and protected location. Fight fire upwind to avoid hazardous vapors and decomposing products. Heat may build pressure and rupture closed containers, spreading fire and increasing the risk of injury. Empty containers may contain residue product and can be dangerous. Use water spray/fog for cooling containers and firefighters. Notify proper authorities if liquid material enters the sewer or public waters.

FIRE FIGHTING EQUIPMENT: As with any fire, wear self-contained breathing apparatus pressure demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

PERSONAL PROTECTIVE EQUIPMENT: The proper personal protective equipment for incidental releases (such as 1 liter of product released in a well ventilated area), use impermeable gloves, goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, chemically resistant suit and boots, and hard hat. Self-Contained Breathing Apparatus or respirator may be required where engineering controls are not adequate or conditions for potential exposure exist. When respirators are required, select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with the latest OSHA and/or ANSI recommendations.

SAFETY DATA SHEET

Product Name: MPower Vigor 150 Herbicide

Issue Date: Feb 22, 2020

ENVIRONMENTAL PRECAUTIONS: Stop spill at source. Construct temporary dikes of dirt, sand, or appropriate readily available material to prevent spreading of material. Close cap or valves and/or block or plug hole in leaking container and transfer to another container. Keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate assistance. **CONTAINMENT AND CLEANUP:** Absorb spilled liquid with polypads or other absorbent materials. Clean up with non-combustible absorbent (such as sand, soil, and so on). Shovel up and place all spill residue in suitable containers. Dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Advice on safe handling Handle and open container in a manner as to prevent spillage. Avoid contact with skin, eyes and clothing. Use only in area provided with appropriate exhaust ventilation.

Advice on protection against fire and explosion Keep away from heat and sources of ignition.

Hygiene measures Handle in accordance with good industrial hygiene and safety practice. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in original container and out of the reach of children, preferably in a locked storage area. Keep away from direct sunlight. Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

RESPIRATORY PROTECTION EQUIPMENT: Use an approved pesticide respirator if ventilation is not adequate or exposure to sprays, mists or concentrated vapours is likely.

PROTECTIVE GLOVES: Chemical-resistant gloves such as nitrile.

EYE AND FACE PROTECTION: Goggles or face shield when handling concentrate.

OTHER PROTECTIVE EQUIPMENT: Long sleeved shirt, long pants, socks and shoes suggested as minimum work clothing. Generally, a second layer such as coveralls suggested for handling concentrate. Use other equipment appropriate to specific situation.

VENTILATION: Use only in well ventilated area.

SAFETY DATA SHEET

Product Name: MPower Vigor 150 Herbicide

Issue Date: Feb 22, 2020

ENGINEERING CONTROLS: Use in a well ventilated area. General ventilation with a good source of make-up air recommended as minimum for indoor situations. Ventilation should be adequate to maintain air concentrations below flammable limits.

ADDITIONAL PROTECTIVE MEASURES: Discarded clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS:

Users should:

Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

- Remove clothing immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Blue liquid
Odor	aromatic
Density	1.11 g/cm ³ at 20 °C
Boiling Point	99°C
Flash Point	55 °C
pH	5-7

SECTION 10: STABILITY AND REACTIVITY

Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid	Extremes of temperature and direct sunlight.
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes Skin Absorption, Ingestion, Inhalation, Eye contact

Immediate Effects

Causes eye irritation.

Harmful or fatal if absorbed through the skin.

Harmful if swallowed.

Information on toxicological effects**Acute oral toxicity**

LD50 (male Rat) 2,270 mg/kg

LD50 (female Rat) 1,730 mg/kg

LD50 (male/female combined Rat) 2,000 mg/kg

Acute inhalation toxicity

LC50 (male Rat) 2.97 mg/l

Exposure time: 4 h

Determined in the form of liquid aerosol.

LC50 (female Rat) 3.91 mg/l

Exposure time: 4 h

Determined in the form of liquid aerosol.

Acute dermal toxicity

LD50 (male Rat) 537 mg/kg

LD50 (female Rat) 642 mg/kg

LD50 (male/female combined Rat) 593 mg/kg

Skin irritation Mild skin irritation. (Rabbit)

Eye irritation Corrosive - causes irreversible eye damage. (Rabbit)

SECTION 12: ECOLOGICAL INFORMATION**Toxicity to fish**

LC50 (Pimephales promelas (fathead minnow)) 461 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient glufosinate-ammonium.

Toxicity to aquatic invertebrates

EC50 (Daphnia magna (Water flea)) > 560 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient glufosinate-ammonium.

Toxicity to aquatic plants

EC50 (Desmodesmus subspicatus (green algae)) 1,129 mg/l

Exposure time: 72 h

The value mentioned relates to the active ingredient glufosinate-ammonium.

Biodegradability

Glufosinate-ammonium: Not rapidly biodegradable

Alkylethersulfate, sodium salt: rapidly biodegradable

Glufosinate-ammonium: Koc: 2.3

SAFETY DATA SHEET

Product Name: MPower Vigor 150 Herbicide

Issue Date: Feb 22, 2020

Bioaccumulation

Glufosinate-ammonium: Bioconcentration factor (BCF) < 1

Does not bioaccumulate.

Alkylethersulfate, sodium salt:

Does not bioaccumulate.

Mobility in soil

Glufosinate-ammonium: Highly mobile in soils

Alkylethersulfate, sodium salt: soluble in water

Environmental precautions

Do not allow to get into surface water, drains and ground water.

Do not apply when weather conditions favor runoff or drift.

Drift or runoff from treated areas may adversely affect non-target plants.

Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS.

PRODUCT DISPOSAL: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

CONTAINER DISPOSAL: Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Do not reuse container for any purpose. If applicable, return container in accordance with return program. If a recyclable container, dispose of at a container collection site. Contact local distributor, dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site, triple or pressure rinse the empty container adding rinsings to spray tank, and make container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

SECTION 14: TRANSPORT INFORMATION

CANADIAN TDG CLASSIFICATION:

Road & Rail Transport: This product is exempt from classification as a Dangerous Good in packs less than 30 kg or litres. For bulk shipments this product is a class 6.1, UN 2902

SAFETY DATA SHEET

Product Name: MPower Vigor 150 Herbicide

Issue Date: Feb 22, 2020

TDG

UN number	2902
Labels	6.1
Packaging group	III
Proper shipping name	PESTICIDES, LIQUID, TOXIC, N.O.S.(GLUFOSINATE-AMMONIUM)

SECTION 15: REGULATORY INFORMATION

CANADIAN REGULATIONS:

Hazardous Products Act Information: WHMIS 2015 Classification

This product is exempt under WHMIS2015.

Pest Control Products (PCP) Act Registration No.: 33267

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Read the approved PCPA label prior to using or handling this pest control product.

SECTION 16: OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 2 Instability - 1 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 2 Flammability - 2 Physical Hazard - 2 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

PMRA Approved Label
2016-1866
2017-06-22
Booklet label

OLYMPUS HERBICIDE



GROUP	2	HERBICIDE
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COMMERCIAL

Wettable Granules



REGISTRATION NUMBER: 32755
PEST CONTROL PRODUCTS ACT

GUARANTEE:

Propoxycarbazone-sodium ... 70%

Warning, contains the allergen milk

READ THE LABEL AND BOOKLET BEFORE USING

Product Information: 1-888-283-6847
www.bayercropscience.ca

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB T2C 3G3

NET CONTENTS:
42 g - Bulk

IN CASE OF SPILLS, POISONING OR FIRE, TELEPHONE EMERGENCY RESPONSE
NUMBER 1-800-334-7577 (24 HOURS A DAY).

OLYMPUS Herbicide

Table of Contents:		Section Number:
GENERAL INFORMATION	The Product	1
SAFETY AND HANDLING	Precautions, Protective Clothing and Equipment, and Re-entry Restrictions	2
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DIRECTIONS FOR USE	Crops and Application Timing	8
	Weeds Controlled and Application Rate	9
	Application Instructions and Cautions	10
	Livestock Feeding and Pre-harvest Intervals	11
	Rotational Crop Recommendations	12
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	Sprayer Cleanup	14
	Herbicide Resistance Management	15

For More Information, Contact:

Product Information: 1-888-283-6847

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB T2C 3G3

GENERAL INFORMATION

SECTION 1: THE PRODUCT

Olympus Herbicide is a selective pre-plant and pre-emergence herbicide which when applied in a tank mixture with glyphosate controls several broadleaf and grassy weeds in spring, durum and winter wheat.

SAFETY AND HANDLING

SECTION 2: PRECAUTIONS, PROTECTIVE CLOTHING AND EQUIPMENT, AND RE-ENTRY RESTRICTIONS

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Harmful if swallowed. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking or smoking. Remove and wash contaminated clothing before reuse.

When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.bayercropscience.ca.

DO NOT apply this product in a way that this product will contact workers or other persons, either directly or through drift. Only handlers wearing personal protective equipment may be in the area being treated during application.

Protective Clothing and Equipment:

To minimize exposure, the following precautions should be followed:

- Protective Clothing and Equipment: During mixing, loading, application, clean-up and repair, workers and handlers must wear long-sleeved shirt and long pants, chemical-resistant gloves and shoes plus socks. Chemical-resistant gloves are not required inside a closed cab or closed cockpit during application. Change contaminated clothing daily and wash before reusing.
- DO NOT handle product with bare hands. Chemical resistant gloves significantly reduce hand exposure. ALWAYS wear gloves for mixing/loading operations and when making sprayer and nozzle repairs and adjustments. DO NOT USE LEATHER OR CLOTH GLOVES.
- Rinse gloves with soap and water before removal, and wash hands thoroughly before eating, smoking or drinking.
- Clean protective equipment daily.
- Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. DO NOT reuse them.
- Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Apply only when the potential for drift to areas of human habitation or areas of human activity (such as houses, cottages and recreational areas) is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Re-entry Restriction:

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

SECTION 3: FIRST AID AND TOXICOLOGICAL INFORMATION

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION: No specific antidote is available. Treat symptomatically.

SECTION 4: ENVIRONMENTAL HAZARDS

TOXIC to aquatic plants and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

USE ONLY FOR RECOMMENDED PURPOSES AND AT RECOMMENDED RATES.

SECTION 5: STORAGE

Keep in original container during storage.

Store in a cool, dry place away from feeds, seeds, fertilizers, plants and foodstuffs.

Do not use or store in or around the home.

SECTION 6: DISPOSAL AND DECONTAMINATION**Recyclable Container Disposal:**

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.

2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container Disposal:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Returnable-refillable Container Disposal: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

SECTION 7: NOTICE TO USER

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label.

It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

DIRECTIONS FOR USE

SECTION 8: CROPS AND APPLICATION TIMING

OLYMPUS Herbicide can be applied up to 1 week prior to planting spring, durum and winter wheat, or immediately after planting but prior to crop emergence. DO NOT apply to crops under sown with legume species.

SECTION 9: WEEDS CONTROLLED AND APPLICATION RATE

OLYMPUS Herbicide must always be applied in a tank mixture with glyphosate. OLYMPUS Herbicide + glyphosate, present as the isopropylamine, dimethylamine, monoammonium, diammonium, trimesium or potassium salt, can be applied prior to planting or immediately after planting but prior to crop emergence in spring, durum and winter wheat. Consult the glyphosate label for further instructions regarding directions for use, restrictions and precautions, and always observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

APPLICATION TIMING	PRODUCT	RATE	WEED SPECIES	RECOMMENDED WEED STAGE AT APPLICATION
	OLYMPUS Herbicide	10 g ai/ha/ 14 g/ha	Barley, volunteer	less than 15 cm in height
			Canada fleabane	less than 8 cm in height
			Canola, volunteer ¹ ,	1-leaf stage to 4-leaf

Preplant or postplant preemergence	+ Glyphosate present as isopropylamine, dimethylamine, mono-ammonium, diammonium, trimesium or potassium salt	+ Glyphosate at 450 g a.e./ha		stage
			Cleavers	less than 15 cm in height
			Common ragweed	less than 8 cm in height
			Downy brome	less than 15 cm in height
			Flax, volunteer	less than 15 cm in height
			Flixweed	less than 15 cm in height
			Giant foxtail	less than 15 cm in height
			Green foxtail	less than 15 cm in height
			Hemp-nettle	less than 15 cm in height
			Japanese brome	Up to and including the 2-leaf stage
			Kochia	less than 15 cm in height
			Lady's-thumb	less than 15 cm in height
			Lamb's-quarters	less than 15 cm in height
			Persian darnel	less than 15 cm in height
			Redroot pigweed	less than 15 cm in height
			Russian thistle	less than 15 cm in height
			Stinkweed	less than 15 cm in height
			Wheat, volunteer	less than 15 cm in height
			Wild buckwheat	less than 8 cm in height and less than 3-leaf stage
		Wild mustard	less than 15 cm in height	
Wild oats	less than 15 cm in height			
	10 g ai/ha/ 14 g/ha + Glyphosate at 900 g a.e./ha	Weed species listed above <i>plus</i> Foxtail barley (Seedling to Heading)		

¹ including glyphosate, glufosinate-ammonium tolerant canola varieties.

- For control of subsequent flushes of volunteer canola (including glyphosate and glufosinate ammonium tolerant varieties), and difficult to control weeds such as downy brome, Japanese brome and foxtail barley, follow an application of Olympus Herbicide + glyphosate with an in-crop application of Varro Herbicide. Refer to the Varro Herbicide label for additional weeds controlled.
- Rainfall within 4 hours of application may reduce effectiveness.

SECTION 10: APPLICATION INSTRUCTIONS AND CAUTIONS

- Apply only once per crop cycle (in the fall or spring).
- For best results, apply to emerged, young, actively growing weeds. Weed control may be reduced when weeds are under stress due to severe weather conditions, drought, very cold temperatures, etc. Weed control may be reduced if herbicide application is made under dry, dusty conditions, especially in wheel track areas.
- Under cool and/or dry conditions activity may be reduced or delayed. Weed control may also be reduced if application is made when weeds are dust covered or in the presence of heavy dew, fog, or mist/rain.
- Follow directions under Sections 8, 9 and 10 for the correct rate and timing of application.
- Avoid contact with desirable plants or crops either from direct application or from spray drift as severe damage may occur.
- As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

- **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

BUFFER ZONES:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of Application	Crop		Buffer Zones (metres) Required for the Protection of:
			Terrestrial Habitat
Field Sprayer	Wheat (Winter)		1
Aerial	Wheat (Winter)	Fixed wing	20
		Rotary wing	15

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

FIELD SPRAYER APPLICATION.

- **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. Boom height must be 60 cm or less above the crop or ground.
- Application of OLYMPUS Herbicide should be made using a minimum of 46.8 litres of water per hectare, at a pressure of 275 kPa, or 310 kPa if using check valves, and at a ground speed of 6-8 kph.
- When tank mixing OLYMPUS Herbicide with a tank mix partner, ensure you read the tank mix partner label for minimum water recommendations.
- The use of 80° or 110° flat fan nozzles is recommended for optimum spray coverage.
- Do not use flood jet nozzles, controlled droplet application equipment or Sprafoil® equipment.
- Uniform, thorough coverage is important to obtain consistent weed control. Higher water volumes should be used under dense crop and weed canopies to ensure thorough coverage of the target weeds.
- Avoid overlapping; shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from over-application.

AERIAL APPLICATION

- **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural

Engineers (ASAE) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

- Apply OLYMPUS Herbicide (ONLY with the recommended tank mix partners that are registered for aerial use) in no less than 28.1 litres of water per hectare at a pressure no less than 300 kPa.
- Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.
- Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended on this label.
- Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Aerial Use Precautions

- Read and understand the entire label before opening this product. If you have questions, call Bayer CropScience Inc. at 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.
- Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.
- Do not apply to terrain where there is a potential for surface run-off to enter aquatic systems.
- Do not apply if rain is expected within 1 hour after spraying. If tank mixing, consult the tank mix partner label and respect the most restrictive interval.

Aerial Operator Precautions:

- Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.
- It is desirable that the pilots have communication capabilities at each treatment site at the time of application.
- The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.
- All personnel on the job site must wash hands and face thoroughly before eating and drinking.
- Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions:

- Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.

SECTION 11: LIVESTOCK FEEDING AND PRE-HARVEST INTERVALS

DO NOT harvest wheat for grain or straw within 71 days of application.

If tank mixing, always respect the maximum pre-harvest interval stated on the labels of all the tank mix products.

SECTION 12: ROTATIONAL CROP RECOMMENDATIONS

OLYMPUS Herbicide breakdown in the soil is due mainly to microbial activity. It can be affected by soil temperature and moisture. Conditions that accelerate the breakdown of OLYMPUS Herbicide include adequate soil moisture and adequate soil temperatures to support microbial activity. Likewise, OLYMPUS Herbicide breakdown can be slowed under dry, cold conditions. When making rotational cropping decisions, soil moisture and soil temperature conditions since application should be considered.

Only the following crops have been field tested to indicate they may be safely planted at the prescribed interval after an application of OLYMPUS Herbicide. To avoid the possibility of injury to subsequent crops after an application of the recommended rate of OLYMPUS Herbicide, follow the crops and replanting interval which appear on this label, and if tank mixing on the label of the tank mix partner, and always observe the most restrictive replanting interval. A field bioassay must be conducted the year prior to growing any other crop of interest to confirm crop safety.

CROP	REPLANTING INTERVAL
Barley, spring	10 months
Canola	10 months
Lentils	10 months
Peas, field	10 months
Wheat, spring, durum and winter	0 month
Oats	12 months
Flax	12 months

SECTION 13: MIXING INSTRUCTIONS

OLYMPUS Herbicide must be applied with properly calibrated and clean sprayer equipment. Prior to adding OLYMPUS Herbicide to the spray tank, ensure that the spray tank is thoroughly clean (see Section 15 “Sprayer Cleanup”). In-line strainers and nozzle screens should be clean and 50 mesh or courser.

1. Fill the spray tank ¼ to ½ full with clean water and begin agitation or bypass.
2. Add the appropriate rate of OLYMPUS Herbicide, as specified under Section 8, directly to the spray tank. Maintain sufficient agitation during both mixing and application.
3. Add tank mix partner.
4. Fill the spray tank with balance of water required.
5. Maintain sufficient agitation during both mixing and application of OLYMPUS Herbicide.

OLYMPUS Herbicide may settle if left standing without agitation. If the spray solution is allowed to stand for one hour or more, re-agitate the spray solution for a minimum of 10 minutes before application.

SECTION 14: SPRAYER CLEANUP

Before and after using OLYMPUS Herbicide always complete a thorough cleaning of the spray tank, lines and filters. The following procedures are recommended:

1. Drain the tank completely, and then wash out tank, boom and hoses with clean water. Drain again.
2. Half fill the tank with clean water and add ammonia (i.e., 3% domestic ammonia solution) at a dilution rate of 1% (i.e., 1 litre of domestic ammonia for every 100 litres of rinsate). Complete filling of the tank with water. Agitate/recirculate and flush through boom and hoses. Leave agitation on for 10 minutes. Drain tank completely.
3. Repeat step 2.

4. Remove nozzles and screens and soak them in a 1% ammonia solution. Inspect nozzles and screens and remove visible residues.
5. Flush tank, boom, and hoses with clean water.
6. Inspect tank for visible residues. If present, repeat step 2.
7. Dispose of rinsings in accordance with provincial regulations.

SECTION 15: HERBICIDE RESISTANCE MANAGEMENT

For resistance management, OLYMPUS Herbicide is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to OLYMPUS Herbicide and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

1. Where possible, rotate the use of OLYMPUS Herbicide or other Group 2 herbicides within a growing season (sequence) or among growing seasons with different herbicide Groups that control the same weeds in a field.
2. Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
3. Herbicide use should be based on an integrated pest management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
4. Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group.
5. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
6. Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
7. Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
8. For further information or to report suspected resistance contact Bayer CropScience Inc. via internet at www.bayercropscience.ca or telephone at 1-888-283-6847

SAFETY DATA SHEET



OLYMPUS HERBICIDE

Version 1.0 / CDN
102000011542

1/10
Revision Date: 11/15/2017
Print Date: 11/16/2017

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name OLYMPUS HERBICIDE
Product code (UVP) 06357164
SDS Number 102000011542
PCP Registration No. 32755

Relevant identified uses of the substance or mixture and uses advised against

Use Herbicide
Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada
Responsible Department Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.
Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

This material is not hazardous under the criteria of Part 2 of the Hazardous Products Regulation.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Propoxycarbazone-sodium	181274-15-7	70.0

SAFETY DATA SHEET



OLYMPUS HERBICIDE

Version 1.0 / CDN
102000011542

2/10
Revision Date: 11/15/2017
Print Date: 11/16/2017

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Rinse out mouth and give water in small sips to drink. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms No symptoms known or expected.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable High volume water jet

Special hazards arising from the substance or mixture In the event of fire the following may be released: Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Sulphur oxides, Nitrogen oxides (NOx)

Advice for firefighters

Special protective equipment for firefighters In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.

Further information Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.

SAFETY DATA SHEET



OLYMPUS HERBICIDE

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	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray.
Flash point	Not applicable
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

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Requirements for storage areas and containers Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Propoxycarbazone-sodium	181274-15-7	10 mg/m ³ (TWA)		OES BCS*

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection Chemical resistant nitrile rubber gloves

Eye protection Goggles

Skin and body protection Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance tan

Physical State granular

Odor weak characteristic

Odour Threshold No data available

pH 7.5 - 9.0 at 10 % (23 °C) (deionized water)

Vapor Pressure No data available

Vapor Density (Air = 1) No data available

Bulk density 0.548 - 0.643 g/ml (loose)

Evaporation rate Not applicable

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Boiling Point	Not applicable
Melting / Freezing Point	from 160 °C / 320 °F
Water solubility	ca. 42 g/l
Minimum Ignition Energy	Not applicable
Decomposition temperature	> 175 °C , Heating rate: 3 K/min Exothermic decomposition.
Partition coefficient: n-octanol/water	Not applicable
Viscosity	Not applicable
Flash point	Not applicable
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113
Other information	Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	> 175 °C, Heating rate: 3 K/min Exothermic decomposition.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	No data available
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Ingestion, Inhalation, Skin contact, Eye contact
Immediate Effects	

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Ingestion Harmful if swallowed.

Information on toxicological effects

Acute oral toxicity LD50 (male/female combined Rat) > 2,000 mg/kg

Acute inhalation toxicity LC50 (male/female combined Rat) > 4.995 mg/l
Exposure time: 4 h
Determined in the form of dust.
No deaths

Acute dermal toxicity LD50 (male/female combined Rat) > 2,000 mg/kg

Skin irritation No skin irritation (Rabbit)

Eye irritation Minimally irritating. (Rabbit)

Sensitisation Non-sensitizing. (Guinea pig)
OECD Test Guideline 406, Buehler test

Assessment STOT Specific target organ toxicity – repeated exposure

Propoxycarbazone-sodium did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Propoxycarbazone-sodium was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Propoxycarbazone-sodium was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Propoxycarbazone-sodium did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Propoxycarbazone-sodium did not cause developmental toxicity in rats. Propoxycarbazone-sodium caused developmental toxicity in rabbits only at dose levels toxic to the dams. The developmental effects seen with Propoxycarbazone-sodium are related to maternal toxicity.

Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

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SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) > 77.6 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) > 107 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient.
Toxicity to aquatic plants	EC50 (Raphidocelis subcapitata (freshwater green alga)) > 113.4 mg/l Exposure time: 72 h Test conducted with a similar formulation. EC50 (Lemna gibba (gibbous duckweed)) 0.0158 mg/l Exposure time: 7 d Test conducted with a similar formulation.
Biodegradability	Propoxycarbazone-sodium: Not rapidly biodegradable
Koc	Propoxycarbazone-sodium: Koc: 29
Bioaccumulation	Propoxycarbazone-sodium: Does not bioaccumulate.
Mobility in soil	Propoxycarbazone-sodium: Mobile in soils
Additional ecological information	No other effects to be mentioned.
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift. Drift or runoff from treated areas may adversely affect non-target plants. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility. Dispose in accordance with all local, state/provincial and federal regulations.
Contaminated packaging	Triple rinse containers. Completely empty container into application equipment, then dispose of empty container in a sanitary landfill, by incineration or by other

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procedures approved by state/provincial and local authorities.
If burned, stay out of smoke.
Follow advice on product label and/or leaflet.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	3077
Labels	9
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (PROPOXYCARBAZONE-SODIUM)

49CFR

Not dangerous goods / not hazardous material

IMDG

UN number	3077
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (PROPOXYCARBAZONE-SODIUM MIXTURE)

IATA

UN number	3077
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (PROPOXYCARBAZONE-SODIUM MIXTURE)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Further Information	Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1. This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.
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SECTION 15: REGULATORY INFORMATION

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PCP Registration No. 32755

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

None.

Canadian Regulations

Canadian Domestic Substance List

None.

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods

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TWA Time weighted average
UN United Nations
WHO World health organisation

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: New Safety Data Sheet.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 11/15/2017

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.



Paradigm™ Herbicide

with ARYLEX™ ACTIVE

GROUP	2	4	HERBICIDES
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FOR SALE FOR USE ONLY IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION AND THE INTERIOR OF BRITISH COLUMBIA

Paradigm is a selective herbicide for postemergent control of annual broadleaf weeds including chickweed, cleavers, lady's thumb, lamb's-quarters, redroot pigweed, volunteer canola, volunteer flax and wild buckwheat in spring wheat (including durum), winter wheat and spring barley. Paradigm plus glyphosate is also registered for pre-seed weed control ahead of spring wheat, durum, spring barley and oats.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: halauxifen, present as methyl ester 20%
florasulam 20%
Wettable granule herbicide

POTENTIAL SKIN SENSITIZER

REGISTRATION NUMBER 31304 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 0.4 kg - bulk

Dow AgroSciences Canada Inc.
2400, 215-2nd Street SW
Calgary, Alberta
T2P 1M4
1-800-667-3852

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

DO NOT APPLY BY AERIAL APPLICATION EQUIPMENT

Potential skin sensitizer.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Wear a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during applications within a closed cab. Rinse gloves before removal.

At completion of spraying or end of the day: Take a shower immediately. Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on the judgment of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of Paradigm Herbicide in areas where soils are permeable, particularly where water table is shallow, may result in ground water contamination.

STORAGE

Store in original containers in a secure, dry, well ventilated storage. Do not allow contamination of seeds, plants, fertilizers or other pesticides. Do not contaminate food, feedstuffs or domestic water supplies. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

To prevent contamination store this product away from food or feed.

DISPOSAL

Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Paradigm™ is a selective postemergence herbicide for the control of hard-to-kill annual broadleaf weeds such as chickweed, cleavers, lamb's-quarters and wild buckwheat in spring wheat (including durum), winter wheat, and spring barley, not underseeded with legumes. Paradigm is mixed with water and applied as a uniform broadcast spray by ground application. It is non-corrosive, nonflammable, and nonvolatile. Paradigm plus glyphosate is also registered for pre-seed weed control ahead of spring wheat, durum, spring barley and oats.

Paradigm must be applied early postemergence, to the main flush of actively growing broadleaf weeds. Warm, moist growing conditions promote active weed growth and enhance the activity of Paradigm by allowing maximum foliar uptake and activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds. See DIRECTIONS FOR USE section of this label for complete use details.

MODE OF ACTION

Paradigm is a mixture of a systemic auxin-type herbicide (Group 4) and an ALS enzyme inhibitor-type herbicide (Group 2). The product controls weeds by disrupting normal plant growth patterns and/or by inhibiting production of the enzyme essential for production of certain amino acids essential for plant growth.

GENERAL USE PRECAUTIONS

Sensitive Plants

Do not apply Paradigm directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, flax, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

Non-Target Sites

Do not apply where proximity of susceptible crops (e.g. flax and legumes) or other desirable plants is likely to result in exposure to spray or spray drift. See ENVIRONMENTAL HAZARDS section of this label.

Crop Rotation

Fields previously treated with Paradigm can be seeded after a minimum of 10 months to alfalfa, spring wheat, spring barley, canola, fababeans, flax, Juncea canola, field peas, potatoes (except seed potatoes), oriental, brown and yellow mustard, soybeans, oats, sunflower or dry bean (*Phaseolus vulgaris* species including pinto, kidney and white types). Lentils can be planted 22 months after application of Paradigm.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc at 1-800-667-3852 or www.corteva.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc. Read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on all product labels.

Spray Equipment Precaution

Do not apply through any type of irrigation system.

To Reduce Spray Drift

1. Use nozzles delivering higher volumes and coarser droplets.
2. Use low pressures (200 to 275 kPa).
3. Use 100 L/ha of spray solution.
4. Spray when the wind velocity is 15 km/hr or less.
5. Spot treatments should only be applied with a calibrated boom to prevent over-application.

Sprayer clean-out

To avoid injury to desirable plants, thoroughly clean equipment used to apply this product before re-use or using it to apply other chemicals.

1. Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. First rinse:
 - Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
 - Agitate and circulate for 15 minutes, and flush through booms and hoses.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.
3. Second rinse:
 - Fill the tank with clean water.
 - Add All Clear Spray Tank Decontaminator, as per manufacturer's recommendations while filling the tank with clean water.
 - Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation. Flush the solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.

- If possible, let the solution stand in the sprayer tank and booms for an extended period of time, overnight if possible.
 - After flushing the boom and hoses, drain tank completely.
 - Remove nozzles and all main filter and nozzle screens and clean separately with a cleaning agent or an ammonia solution (100 mL in 10 L water).
4. Third rinse:
- Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.

DIRECTIONS FOR USE

READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. DO NOT APPLY TO CROPS UNDERSEEDING WITH LEGUMES.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

APPLICATION METHODS

Ground Application

Using ground equipment, apply Paradigm as a broadcast treatment at the recommended rate as specifically listed in the DIRECTIONS FOR USE section of this label.

DO NOT APPLY BY AERIAL APPLICATION EQUIPMENT

Field sprayer application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

PARADIGM HERBICIDE ALONE

Crops Registered

Spring wheat (including durum), winter wheat and spring barley

Field Sprayer Application Directions

Apply the recommended rate of Paradigm per hectare in 50-100 L per hectare of water. Add Intake Adjuvant at 0.5–1% v/v (use the higher Intake rate for heavy weed infestations or on stressed weeds that are not actively growing at the time of application). Alternatively, add Non-Ionic Surfactant (NIS) at 0.25% v/v or Merge Adjuvant at 0.5% v/v or Turbocharge Adjuvant at 0.5% v/v. See weeds species controlled under “Weeds Controlled or Suppressed by Paradigm Alone.” Apply to actively growing spring wheat and spring barley from the 2 leaf stage to just prior to flag leaf emergence. In winter wheat apply from 3 leaf stage to just prior to flag leaf emergence. Apply when weeds are actively growing. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds.

Application Timing

Apply to actively growing weeds at the 1-8 leaf stage unless otherwise specified. Extreme growing conditions such as drought or near freezing temperature prior to, at or following time of application may reduce weed control and increase the risk of crop injury at all stages of growth. Only weeds which are emerged at the time of application will be affected. If foliage is wet at the time of application control may be decreased. Under conditions of low crop and high weed density, control may be reduced.

Applications of Paradigm are rainfast within 1 hour of application.

Weeds Controlled or Suppressed by Paradigm Alone at 25 g/ha (1-8 leaf stage, unless otherwise specified)

Weeds Controlled:

alfalfa, volunteer (up to 25 cm in height)	henbit (up to bud stage and 15 cm in height)
American dragonhead (up to bud stage and 15 cm in height)	lamb's-quarters***. ****
barnyard grass (up to the 5 leaf, 2-tiller stage)	mustard, wild****
buckwheat, wild	narrow-leaved hawk's-beard (up to bolting & 30 cm in height)
canola, volunteer**	ragweed, common (up to 6-leaf stage) ****
chickweed***	redroot pigweed
cleavers (1-9 whorl stage)***	round-leaved mallow (up to the 6-leaf stage)
cow cockle	shepherd's-purse (up to bolting & 20 cm in height)
dandelion (seedlings & over-wintered rosettes up to 30 cm in diameter)	smartweed (green smartweed, lady's thumb)
flax, volunteer (up to 15 cm in height)	sow-thistle, annual (up to 4 leaf stage)
fleabane, Canada (up to 15 cm in height) ****	stinkweed****
flixweed (up to 8 leaf & 8 cm in height)	stork's-bill (up to the 8-leaf stage)
	velvetleaf (up to the 5-leaf stage)

Weeds Suppressed:

hemp-nettle (1-8 leaf stage)***	sow-thistle, perennial (up to 6-leaf stage)
kochia*	thistle, Canada (up to the bolting stage, 30 cm in height)
night flowering catchfly (up to bolting stage, 15 cm in height)	white cockle (spring seedlings and over-wintered plants up to the bud stage)
scentless chamomile (up to the bud stage)	

*Light to moderate infestation (up to 150 plants/m²; up to 15 cm in height), including Group 2 resistant biotypes

**Will not control volunteer Imidazolinone-tolerant canola (Clearfield varieties)

***Including Group 2 resistant biotypes

****Best results are obtained when applied to actively growing weeds in the 1 to 4 leaf (seedling) stage

*****Including Group 2 and 9 resistant biotypes

Mixing Instructions for Paradigm Alone

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the required amount of Paradigm.
4. Fill the sprayer tank with sufficient water to spray 50-100 L of spray mixture per hectare.
5. Add one of the adjuvants recommended above in the Field Sprayer Application Directions section as the last ingredient.
6. Follow sprayer directions and precautions as outlined above, especially when applying next to sensitive crops (e.g. flax and legumes).
7. Follow sprayer clean-up directions.

Preharvest/Grazing Intervals

- Livestock may be grazed on treated crops 7 days following application.
- Do not harvest the treated crop within 60 days after application.
- Do not cut the treated crop for hay or silage within 21 days after application.

TANK MIXING PARADIGM + OTHER TANK-MIX PARTNERS

MIXING INSTRUCTIONS FOR TANK MIXING PARADIGM+ OTHER TANK-MIX PARTNERS

1. Begin to fill sprayer tank with clean water, and engage agitator. **Agitation must be continued throughout the entire mixing and spraying procedure.**
2. When the sprayer is three quarters full of water, add Paradigm and agitate for 2-3 minutes.
3. If including an annual grass control tank-mix partner add it next. Agitate for 2-3 minutes.
4. If including MCPA ester, Curtail™ M Herbicide, Lontrel™ Herbicide or Lontrel™ XC Herbicide add it next. Agitate for 2-3 minutes.
5. Add the Adjuvant indicated in the below tables for the annual grass control product.
6. Agitate for 1-2 minutes before adding remainder of water and then maintain constant agitation.
7. After any break in spraying operations, agitate thoroughly before spraying again.
8. **Use the spray suspension as soon as it is prepared.**

TANK-MIX COMBINATIONS – PARADIGM HERBICIDE + MCPA ESTER HERBICIDE

Crops Registered

Spring wheat (including durum), winter wheat, spring barley

Application Directions

For control of a wide spectrum of broadleaf weeds apply Paradigm tank mixed with MCPA ester (600 g ae/L) in 50-100 L per hectare of water. Apply to actively growing spring wheat or spring barley from the 3 leaf stage to just prior to flag leaf emergence. In winter wheat apply from 3 leaf stage to just prior to flag leaf emergence. Apply when weeds are actively growing. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds. When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on all product labels.

Weeds Controlled or Suppressed by Paradigm Herbicide at 25 g/ha + MCPA Ester (600 g ae/L) at 467 mL/ha (1-8 leaf stage, unless otherwise specified)

Weeds Controlled:

alfalfa, volunteer (up to 25 cm in height)	lamb's-quarters*
barnyard grass (up to the 5 leaf, 2-tiller stage)	mustard, wild***
buckwheat, wild	narrow-leaved hawk's-beard (up to bolting & 30 cm in height)
canola, volunteer**	ragweed, common (up to 6-leaf stage)****
chickweed*	redroot pigweed
cleavers (1-9 whorl stage)*	round-leaved mallow (up to the 6-leaf stage)
cow cockle	shepherd's-purse (up to bolting & 20 cm in height)
dandelion (seedlings & over-wintered rosettes up to 30 cm in diameter)	smartweed (green smartweed, lady's thumb)
flax, volunteer (up to 15 cm in height)	sow-thistle, annual (up to 4 leaf stage)
fleabane, Canada (up to 15 cm in height)****	stinkweed***
flixweed (up to 8 leaf & 8 cm in height)	stork's-bill (up to the 8-leaf stage)
hemp-nettle (1-8 leaf stage)*	velvetleaf (up to the 5-leaf stage)

Weeds Suppressed:

kochia*	thistle, Canada (up to the bolting stage, 30 cm in height)
night flowering catchfly (up to bolting stage, 15 cm in height)	white cockle (spring seedlings and over-wintered plants up to the bud stage)
scentless chamomile (up to bud stage)	
sow-thistle, perennial (up to 6-leaf stage)	

*Including Group 2 resistant biotypes

**Including volunteer Imidazolinone-tolerant canola (Clearfield varieties)

***Best results are obtained when applied to actively growing weeds in the 1 to 4 leaf (seedling) stage

****Including Group 2 and 9 resistant biotypes

Weeds Controlled or Suppressed by Paradigm Herbicide at 25 g/ha + MCPA Ester (600 g ae/L) at 580 mL/ha (1-8 leaf stage, unless otherwise specified)

Weeds Controlled:

alfalfa, volunteer (up to 25 cm in height)	mustard, ball***
barnyard grass (up to the 5 leaf, 2-tiller stage)	mustard, wild***
buckwheat, wild	narrow-leaved hawk's-beard (up to bolting & 30 cm in height)
burdock***	pigweed, redroot*
canola, volunteer*	pigweed, Russian***
chickweed*	prickly lettuce***
cleavers (1-9 whorl stage)*	ragweed, common (up to 6-leaf stage)****
cocklebur***	round-leaved mallow (up to the 6-leaf stage)
cow cockle	shepherd's-purse (up to bolting & 20 cm in height)
dandelion (seedlings & over-wintered rosettes up to 30 cm in diameter)	smartweed, annual (green smartweed, lady's thumb)
flax, volunteer (up to 15 cm in height)	sow-thistle, annual (up to 4 leaf stage)
fleabane, Canada (up to 15 cm in height)****	stinkweed***
flixweed (up to 8 leaf & 8 cm in height)	stork's-bill (up to the 8-leaf stage)
hemp-nettle*	sunflower, annual***
lamb's-quarters*	velvetleaf (up to the 5-leaf stage)
	vetch***
	wild radish***

Weeds Suppressed:

kochia**	sowthistle, perennial (up to 6-leaf stage)
night flowering catchfly (up to bolting stage, 15 cm in height)	thistle, Canada (up to the bolting stage, 30 cm in height)
scentless chamomile (up to bud stage)	white cockle (spring seedlings and over-wintered plants up to the bud stage)
plantain (top growth)***	

*Including Group 2 resistant biotypes

**light to moderate infestations (up to 150 plants/m²; up to 15 cm in height), including Group 2 resistant biotypes

***Best results are obtained when applied to actively growing weeds in the 1 to 4 leaf (seedling) stage

****Including Group 2 and 9 resistant biotypes

Mixing Instructions

See mixing Instructions for PARADIGM HERBICIDE + MCPA ESTER HERBICIDE in section entitled MIXING INSTRUCTIONS FOR TANK MIXING PARADIGM + OTHER TANK-MIX PARTNERS.

TANK MIX COMBINATIONS - PARADIGM HERBICIDE plus:

**LONTREL 72 OR LONTREL 360 OR LONTREL XC HERBICIDE
OR
LONTREL 72 OR LONTREL 360 OR LONTREL XC HERBICIDE+ MCPA ESTER
OR
CURTAIL M**

Crops Registered

Spring wheat (including durum), winter wheat, spring barley

Field Sprayer Application Directions

For control of a wide spectrum of broadleaf weeds apply Paradigm tank mixed with Lontrel 72 Herbicide, Lontrel 360 Herbicide or Lontrel XC Herbicide; Lontrel 72, Lontrel 360 or Lontrel XC plus MCPA ester, or Curtail M at the rates indicated in the table below in 100 L per hectare of water. Apply to actively growing spring wheat or spring barley from the 3 leaf stage to just prior to flag leaf emergence. In winter wheat apply from 3 leaf stage to just prior to flag leaf emergence. Apply when weeds are actively growing. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds. When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on all product labels.

Refer to the product labels of the herbicide tank-mix partners listed below for a full list of other weeds controlled, rates (if not listed in the table below) and timings of application, water volumes and use precautions.

PARADIGM HERBICIDE AT 25 g/ha PLUS:

Tank Mix Partner	Rate/ha	Additional Pests Controlled
Lontrel 72 or Lontrel 360 or Lontrel XC Herbicide	104 g/ha or 208 mL/ha or 125 mL/ha	thistle, Canada (up to the bolting stage and 30 cm in height), scentless chamomile (spring seedlings up to bud stage and 15 cm in size) <i>Note: An adjuvant is required with this tank-mix. Use Intake at 0.5-1% v/v, NIS at 0.25% v/v, or Merge at 0.5% v/v. When tank-mixing with a graminicide, see graminicide label for adjuvant requirements.</i>
Lontrel 72 or Lontrel 360 or Lontrel XC Herbicide + MCPA Ester 600	104 g/ha or 208 mL/ha or 125 mL/ha + 467 mL/ha (equivalent to 280 g ae/ha)	thistle, Canada (up to the bolting stage and 30 cm in height) volunteer canola* hemp-nettle (1-8 leaf stage)* <i>Plus all weeds listed earlier in the label as controlled or suppressed by Paradigm Herbicide at 25 g/ha plus MCPA Ester 600 at 467 mL/ha</i>
Lontrel 72 or Lontrel 360 or Lontrel XC Herbicide + MCPA Ester 600	104 g/ha or 208 mL/ha or 125 mL/ha + 580 mL/ha (equivalent to 350 g ae/ha)	thistle, Canada (up to the bolting stage and 30 cm in height) <i>Plus all weeds listed earlier in the label as controlled or suppressed by Paradigm Herbicide at 25 g/ha plus MCPA Ester 600 at 580 mL/ha</i>
Lontrel 72 or Lontrel 360 or Lontrel XC Herbicide	104 g/ha or 208 mL/ha or 125 mL/ha +	dandelion (seedlings, overwintered rosettes & mature plants) field horsetail (top growth) plantain (top growth) sowthistle, perennial (up to the bolting stage & 20 cm in height)

+ MCPA Ester 600	700 mL/ha (equivalent to 420 g ae/ha)	sunflower, volunteer thistle, Canada (up to the bud stage) <i>Plus all weeds listed earlier in the label as controlled or suppressed by Paradigm Herbicide at 25 g/ha plus MCPA Ester 600 at 580 mL/ha</i>
Curtail™ M Herbicide	1.5 L/ha	dandelion (seedlings, overwintered rosettes & mature plants) field horsetail (top growth) plantain (top growth) sowthistle, perennial (up to the bolting stage & 20 cm in height) sunflower, volunteer thistle, Canada (up to the bud stage) <i>Plus all weeds listed earlier in the label as controlled or suppressed by Paradigm Herbicide at 25 g/ha plus MCPA Ester 600 at 580 mL/ha</i>

*Including Group 2 resistant biotypes

Mixing Instructions

See mixing Instructions for PARADIGM HERBICIDE + CURTAIL M HERBICIDE OR LONTREL 72 + MCPA ESTER, LONTREL 360 + MCPA ESTER OR LONTREL XC HERBICIDE + MCPA ESTER in section entitled MIXING INSTRUCTIONS FOR TANK MIXING PARADIGM + OTHER TANK-MIX PARTNERS.

TANK-MIX COMBINATIONS – PARADIGM HERBICIDE + OTHER HERBICIDES FOR ANNUAL GRASS CONTROL

For control of annual grasses (see table below) tank-mix Paradigm with the following graminicides. Refer to the above table for broadleaf weeds controlled or suppressed with Paradigm. When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on all product labels.

Tank-Mix Combinations with Paradigm Herbicide for Annual Grass Control

Tank-Mix Partner	Crops Registered	Rate/ha	Adjuvant and Rate	Additional Weeds Controlled
Simplicity GoDRI™*	spring wheat, durum wheat winter wheat	70 g/ha	Agral 90 at 0.25% v/v	wild oats, barnyard grass, Japanese brome, yellow foxtail, hemp-nettle, flixweed (up to 10 cm in height), green foxtail, downy brome, white cockle (spring seedlings and over- wintered plants up to the bud stage), night flowering catchfly (up to bolting stage, 15 cm in height), scentless chamomile (spring seedlings up to bud stage and 15 cm in size)

Simplicity™*	spring wheat, durum wheat winter wheat	500 ml/ha	Agral 90 at 0.25% v/v	wild oats, barnyard grass, Japanese brome, yellow foxtail, hemp-nettle, flixweed, green foxtail, downy brome, white cockle, night flowering catchfly (up to bolting stage, 15 cm in height)
Tandem™ A + Tandem™ B	spring wheat, durum wheat	375 mL/ha + 0.21 L/ha	Not required	wild oats (under low wild oat populations (<75 plants/m ²), plus additional broadleaf weeds (refer to Tandem Use Instructions)
		500 mL/ha + 0.31 L/ha	Not required	wild oats, barnyard grass, Japanese brome, yellow foxtail, green foxtail, downy brome, white cockle, night flowering catchfly (up to bolting stage, 15 cm in height), plus additional broadleaf weeds (refer to Tandem Use Instructions)
Axial Herbicide	spring wheat, spring barley	1200 mL/ha	Not required	wild oats, green foxtail, yellow foxtail, barnyard grass, volunteer oats, volunteer canary seed, proso millet
Everest 2.0*	spring wheat, durum wheat	36-72 mL/ha	Ag-Surf or Agral 90 at 0.25% v/v	wild oats, green foxtail, volunteer tame oats

*Consult tank-mix partner label for rate-specific claims.

Mixing Instructions

See mixing Instructions for PARADIGM HERBICIDE + OTHER HERBICIDES FOR ANNUAL GRASS CONTROL in section entitled MIXING INSTRUCTIONS FOR TANK MIXING PARADIGM + OTHER TANK-MIX PARTNERS.

TANK MIX COMBINATIONS - PARADIGM HERBICIDE plus:

MCPA ESTER HERBICIDE

OR

LONTREL 72 OR LONTREL 360 OR LONTREL XC HERBICIDE

OR

LONTREL 72 OR LONTREL 360 OR LONTREL XC HERBICIDE + MCPA ESTER 600 (467 and 580 mL/ha rates only)

+ OTHER HERBICIDES FOR ANNUAL GRASS CONTROL

For control of annual grasses (see table below) tank-mix Paradigm + MCPA Ester 600, Paradigm + Lontrel 72, Lontrel 360 or Lontrel XC Herbicide, or Paradigm + Lontrel 72, Lontrel 360 or Lontrel XC Herbicide + MCPA Ester 600 (467 and 580 mL/ha rates only) with the following graminicides. Refer to the above table for broadleaf weeds controlled or suppressed with Paradigm. When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on all product labels.

Tank-Mix Combinations with Paradigm Herbicide+ MCPA Ester 600 Paradigm + Lontrel 72, Lontrel 360 or Lontrel XC Herbicide, or Paradigm + Lontrel 72 or Lontrel 360 or Lontrel XC Herbicide + MCPA Ester 600 (467 and 580 mL/ha rates only) for Annual Grass Control

Tank-Mix Partner	Crops Registered	Rate/ha	Adjuvant and Rate	Additional Weeds Controlled
Simplicity GoDRI*	spring wheat, durum wheat winter wheat	70 g/ha	Agral 90 at 0.25% v/v	wild oats, barnyard grass, Japanese brome, yellow foxtail, flixweed (up to 10 cm in height), green foxtail, downy brome, white cockle (spring seedlings and over-wintered plants up to the bud stage), night flowering catchfly (up to bolting stage, 15 cm in height), scentless chamomile (spring seedlings up to bud stage and 15 cm in size)
Simplicity*	spring wheat, durum wheat winter wheat	500 ml/ha	Agral 90 at 0.25% v/v	wild oats, barnyard grass, Japanese brome, yellow foxtail, hemp-nettle, flixweed, green foxtail, downy brome, white cockle, night flowering catchfly (up to bolting stage, 15 cm in height)
Tandem A + Tandem B	spring wheat, durum wheat	375 mL/ha + 0.21 L/ha	Not required	wild oats (under low wild oat populations (<75 plants/m ²), plus additional broadleaf weeds (refer to Tandem Use Instructions)
		500 mL/ha + 0.31 L/ha	Not required	wild oats, barnyard grass, Japanese brome, yellow foxtail, green foxtail, downy brome, white cockle, night flowering catchfly (up to bolting stage, 15 cm in height), plus additional broadleaf weeds (refer to Tandem Use Instructions)
Axial Herbicide	spring wheat, spring barley	1200 mL/ha	Not required	wild oats*, green foxtail*, yellow foxtail*, barnyard grass, volunteer oats, volunteer canary seed, proso millet
Everest 2.0*	spring wheat, durum wheat	36-72 mL/ha	Ag-Surf or Agral 90 at 0.25% v/v	wild oats, green foxtail, volunteer tame oats

*Consult tank-mix partner label for rate-specific claims.

* When applying Paradigm + Lontrel 72 or Lontrel 360 or Lontrel XC Herbicide + MCPA Ester 600, control of these weeds may be reduced under adverse conditions, high populations, and / or advanced staging.

Mixing Instructions

See mixing Instructions for PARADIGM HERBICIDE + MCPA ESTER HERBICIDE + OTHER HERBICIDES FOR ANNUAL GRASS CONTROL in section entitled MIXING INSTRUCTIONS FOR TANK MIXING PARADIGM + OTHER TANK-MIX PARTNERS.

TANK MIX COMBINATIONS - PARADIGM HERBICIDE plus:

CURTAIL M HERBICIDE

OR

LONTREL 72 OR LONTREL 360 OR LONTREL XC HERBICIDE + MCPA ESTER 600 (700 mL/ha)

+ OTHER HERBICIDES FOR ANNUAL GRASS CONTROL

For control of annual grasses (see table below) tank-mix Paradigm + Curtail M or Paradigm + Lontrel 72, Lontrel 360 or Lontrel XC Herbicide + MCPA Ester 600 (700 mL/ha) with the following graminicides. Refer to the above table for broadleaf weeds controlled or suppressed with Paradigm. When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on all product labels.

Tank-Mix Combinations with Paradigm Herbicide + Curtail M for Annual Grass Control

Tank-Mix Partner	Crops Registered	Rate/ha	Adjuvant and Rate	Additional Weeds Controlled
Simplicity GoDRI*	spring wheat, durum wheat, winter wheat	70 g/ha	Agral 90 at 0.25% v/v	wild oats, barnyard grass, Japanese brome, yellow foxtail, flixweed (up to 10 cm in height), green foxtail, downy brome, white cockle (spring seedlings and over-wintered plants up to the bud stage), night flowering catchfly (up to bolting stage, 15 cm in height), scentless chamomile (spring seedlings up to bud stage and 15 cm in size)
Simplicity*	spring wheat, durum wheat, winter wheat	500 mL/ha	Agral 90 at 0.25% v/v	wild oats, barnyard grass, Japanese brome, yellow foxtail, green foxtail, downy brome, white cockle, night flowering catchfly (up to bolting stage, 15 cm in height)
Tandem A + Tandem B	spring wheat, durum wheat	375 mL/ha + 0.21 L/ha	Not required	wild oats (under low wild oat populations (<75 plants/m ²), plus additional broadleaf weeds (refer to Tandem Use Instructions))
		500 mL/ha + 0.31 L/ha	Not required	wild oats, barnyard grass, Japanese brome, yellow foxtail, green foxtail, downy brome, white cockle, night flowering catchfly (up to bolting stage, 15 cm in height), plus additional broadleaf weeds (refer to Tandem Use Instructions)
Everest 2.0*	spring wheat, durum wheat	36-72 mL/ha	Ag-Surf or Agral 90 at 0.25% v/v	wild oats, green foxtail, volunteer tame oats,

*Consult tank-mix partner label for rate-specific claims.

Mixing Instructions

See mixing Instructions for PARADIGM HERBICIDE + CURTAIL M HERBICIDE + OTHER HERBICIDES FOR ANNUAL GRASS CONTROL in section entitled MIXING INSTRUCTIONS FOR TANK MIXING PARADIGM + OTHER TANK-MIX PARTNERS.

PARADIGM HERBICIDE PLUS GLYPHOSATE

PRIOR TO PLANTING WINTER WHEAT (IN THE FALL)

Apply Paradigm at a rate of 25 g/ha, mixed with a glyphosate product such as VP480 Herbicide or Maverick™ III at 0.94 L/ha (450 g ae/ha) in 50-100 L of water per hectare in the fall prior to planting winter wheat. If using a glyphosate product other than 480 g ae/L adjust the rate of product accordingly.

Weeds Controlled or Suppressed with Paradigm Herbicide at 25 g/ha + a glyphosate product such as VP480 Herbicide or Maverick III Herbicide at 0.94 L/ha

Weeds Controlled

Annual Broadleaf Weeds

buckwheat, wild (up to 8 leaves)	flixweed	pigweed, redroot (up to 8 leaves)
canola, volunteer♦	hemp nettle	ragweed, common♦♦
chickweed, common (up to 8 leaves)	kochia	shepherd's purse
cleavers (up to 9 whorls)	lady's-thumb (up to 8 leaves)	smartweed (up to 8 leaves)
cow cockle	lamb's-quarters (up to 8 leaves)	stinkweed
flax, volunteer (up to 15 cm)	mustard, wild	thistle, Russian
fleabane, Canada♦♦	narrow-leaved hawk's beard♦♦	

Annual Grasses

barley, volunteer	foxtail, green	Persian darnel
brome, downey	oats, wild	wheat, volunteer
foxtail, giant		

Perennial Weeds

dandelion (seedling, overwintered rosettes, mature plants up to 30 cm in diameter)

Weeds Suppressed

sow-thistle, annual	white cockle (spring seedlings and over-wintered plants up to the bud stage)
sow-thistle, perennial♦♦♦	

♦Including all herbicide tolerant canola varieties

♦♦ Less than 8 cm in height

♦♦♦Applications made at advanced stages will reduce effectiveness

SPRING APPLICATION PRIOR TO PLANTING CEREAL CROPS

Apply Paradigm at a rate of 18.75 g/ha mixed with a glyphosate product such as VP480 Herbicide or Maverick III at 0.94 L/ha (450 g ae/ha) in 50-100 L of water per hectare prior to planting spring wheat (including durum), spring barley or oats. If using a glyphosate product other than 480 g ae/L adjust the rate of product accordingly.

Weeds Controlled or Suppressed with Paradigm Herbicide at 18.75 g/ha + a glyphosate product such as VP480 Herbicide or Maverick III Herbicide at 0.94 L/ha

Weeds Controlled:

Annual Broadleaf Weeds

buckwheat, wild (1-2 leaves)	fleabane, Canada**	mustard, wild
canola, volunteer*	flixweed	ragweed, common**
chickweed, common (up to 8 leaves)	hemp nettle	shepherd's purse
cleavers (up to 9 whorls)	lady's-thumb (up to 8 leaves)	stinkweed
flax, volunteer (up to 15 cm)	lamb's-quarters (up to 8 leaves)	thistle, Russian

Annual Grasses

barley, volunteer	foxtail, green	Persian darnel
brome, downey	oats, wild	wheat, volunteer
foxtail, giant		

Perennial Weeds

dandelion (spring rosettes up to 15 cm in diameter)

Weeds Suppressed:

kochia

*Including all herbicide tolerant canola varieties

** Less than 8 cm in height and including Group 2 tolerant biotypes

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the required amount of Paradigm, continue agitation.
4. Add the required amount of glyphosate product and continue agitation.
5. Fill the sprayer tank with sufficient water to spray 50 - 100 L of spray mixture per hectare.

TANK-MIX COMBINATION – PARADIGM HERBICIDE + A GLYPHOSATE PRODUCT + ADDITIONAL TOP-UP RATES OF A GLYPHOSATE PRODUCT SUCH AS VP480 HERBICIDE OR MAVERICK III FOR BROADER SPECTRUM WEED CONTROL

Paradigm Herbicide can be tank mixed with a higher rate of glyphosate for control of additional weeds listed in the tables below. When applied as a tank-mix combination, read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on all product labels.

Tank-Mix Combinations with Additional Glyphosate for Broader Spectrum Weed Control

Additional Top-Up Rate for VP480 Herbicide or Maverick III L/Ha	Additional Weeds Controlled
0.46 (222 g ae/ha) *** Total 672 g ae/ha	Annual weeds: Narrow-leaved hawk's beard (8-15 cm)
0.75 (360 g ae/ha) *** Total 810 g ae/ha	Annual weeds: Crab grass, annual blue grass, prickly lettuce, annual sow thistle, and narrow-leaved vetch
0.94 (450 g ae/ha) *** Total 900 g ae/ha	Perennial weeds: Quack grass (control, light to moderate infestations) Foxtail barley (control, light to moderate infestations) Canada thistle (rosette stage)* Toadflax (Vegetative Stage in chem-fallow)**

2.62- 4.30 (1257-2064 g ae/ha) *** Total 1707-2514 g ae/ha	Perennial weeds: Quack grass (heavy infestations, longer control) Foxtail barley (heavy infestations or when plants are under stress – low rate only) Canada thistle (bud stage or beyond) **
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♦ Allow 5 or more days after treatment before tillage

♦♦ Allow 10 days after treatment before tillage

♦♦♦ If using a glyphosate product other than 480 g ae/L concentration adjust the rate of product accordingly

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the required amount of Paradigm, continue agitation.
4. Add the required amount of glyphosate formulation, continue agitation.
5. Add tank-mix partner.
6. Fill the sprayer tank with sufficient water to spray 50 - 100 L of spray mixture per hectare.

Application Timing

Apply to actively growing weeds in the 2-4 leaf stage, except where noted above. Extreme growing conditions such as drought or near freezing temperature prior to, at or following time of application may reduce weed control. Only weeds which are emerged at the time of application will be affected. If foliage is wet at the time of application, control may be decreased. Under conditions of high weed density, control may be reduced.

Pre-Seed (spring or fall)

Paradigm Herbicide may be applied prior to seeding and no longer than 48 hours after seeding, prior to any crop emergence. Fields treated with Paradigm Herbicide may be planted to barley, spring wheat (including durum), winter wheat or oats.

Fall Application

Paradigm Herbicide may be applied to stubble or chem-fallow fields after August 1st and prior to freeze-up and may be seeded in the fall to winter wheat and in the following spring to barley, spring wheat (including durum), or oats.

BUFFER ZONES

Spot treatments using hand-held equipment do not require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Paradigm Herbicide (Florasulam + Halauxifen-methyl)

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:		
		Freshwater Habitat of Depths:		Terrestrial Habitat:
		Less than 1 m	Greater than 1 m	
Field sprayer	Spring wheat, durum wheat, winter wheat, spring barley, oats	1	1	1

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Paradigm is both a Group 2 and a Group 4 herbicide. Any weed population may contain plants naturally resistant to Group 2 and/or Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Paradigm or other Group 2 and Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

TMTrademarks of Dow AgroSciences, DuPont or Pioneer and their affiliated companies or respective owners.

All other products listed are registered trademarks of their respective companies.

071919

Label Code: CN-31304-017-E

Replaces: CN-31304-016-E

Specimen label notes

Add oats and remove summerfallow

Add fababean and alfalfa to rotational crops

SAFETY DATA SHEET

DOW AGROSCIENCES CANADA INC.

Product name: PARADIGM™ Herbicide

Issue Date: 08/24/2017

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: PARADIGM™ Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
#2400, 215 - 2ND STREET S.W.
CALGARY AB T2P 1M4
CANADA

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Granules

Color Tan

Odor Mild

Hazard Summary	<u>WARNING!!</u> May cause allergic skin reaction. May cause eye irritation. Isolate area. Slipping hazard. Toxic fumes may be released in fire situations. Highly toxic to fish and/or other aquatic organisms.
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Potential Health Effects

Eyes: May cause slight eye irritation.
Corneal injury is unlikely.

Skin: Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Has demonstrated the potential for contact allergy in mice.
Essentially nonirritating to skin.

Inhalation: No adverse effects are anticipated from single exposure to dust.
Based on the available data, respiratory irritation was not observed.

Ingestion: Very low toxicity if swallowed.
Harmful effects not anticipated from swallowing small amounts.

Chronic Exposure: For the active ingredient(s):
In animals, effects have been reported on the following organs:
Kidney.
Liver.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Mixture
This product is a mixture.

Component	CASRN	Weight percent
Halauxifen-methyl	943831-98-9	20.85%
Florasulam	145701-23-1	20.0%
Kaolin	1332-58-7	>= 0.4 - <= 12.6 %
Titanium dioxide	13463-67-7	0.3%
Quartz	14808-60-7	0.1%
Balance	Not available	>= 46.15 - <= 58.35 %

4. FIRST AID MEASURES**Description of first aid measures**

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen fluoride. Hydrogen cyanide. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, do not permit dust to accumulate.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Soak thoroughly with water to cool and prevent re-ignition. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Processing this product may generate dusts. Dust explosion hazard may result from forceful application of fire extinguishing agents. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing dust or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Use with adequate ventilation. Good housekeeping and controlling of dusts are necessary for safe handling of product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Kaolin	ACGIH	TWA Respirable fraction	2 mg/m ³
	CA AB OEL	TWA Respirable	2 mg/m ³
	CA BC OEL	TWA Respirable	2 mg/m ³
	CA QC OEL	TWAEV respirable dust	5 mg/m ³
Titanium dioxide	ACGIH	TWA	10 mg/m ³ , Titanium dioxide
	Dow IHG	TWA	2.4 mg/m ³
	CA AB OEL	TWA	10 mg/m ³
	CA BC OEL	TWA	10 mg/m ³
	CA QC OEL	TWAEV total dust	10 mg/m ³
Quartz	ACGIH	TWA Respirable fraction	0.025 mg/m ³ , Silica
	CA AB OEL	TWA Respirable particulates	0.025 mg/m ³
	CA ON OEL	TWA Respirable fraction	0.1 mg/m ³
	CA QC OEL	TWAEV respirable dust	0.1 mg/m ³
	CA BC OEL	TWA Respirable	0.025 mg/m ³ , Silica

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyvinyl chloride ("PVC" or "vinyl"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, in dusty atmospheres, use an approved particulate respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Granules
Color	Tan
Odor	Mild
Odor Threshold	No test data available
pH	5.62 <i>pH Electrode</i> (1% aqueous suspension)
Melting point/range	Not determined
Freezing point	Not applicable
Boiling point (760 mmHg)	Not applicable
Flash point	closed cup Not applicable
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	No data available
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	Not applicable
Relative Density (water = 1)	No data available
Water solubility	Not determined
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	Not applicable

Decomposition temperature	No test data available
Kinematic Viscosity	Not applicable
Explosive properties	No
Oxidizing properties	No significant increase (>5C) in temperature.
Bulk density	0.59 g/m ³ <i>Loose Volumetric</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: Avoid contact with: Strong oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

LD50, Rat, female, > 5,000 mg/kg No deaths occurred at this concentration.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rat, male and female, > 5,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. Based on the available data, respiratory irritation was not observed.

Maximum attainable concentration.

LC50, Rat, male and female, 4 Hour, dust/mist, > 2.27 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause slight eye irritation.

Corneal injury is unlikely.

Sensitization

Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):
In animals, effects have been reported on the following organs:
Kidney.
Liver.

Carcinogenicity

For the active ingredient(s): Florasulam. For similar active ingredient(s). Halauxifen. Did not cause cancer in laboratory animals. A risk assessment has been conducted for this product and has shown, that under normal handling, the minor components will not pose a hazard.

Teratogenicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For the active ingredient(s): Florasulam. Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive toxicity

For the active ingredient(s): Florasulam. For similar active ingredient(s). Halauxifen. In animal studies, did not interfere with reproduction.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, > 100 mg/l

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, 0.0478 mg/l

ErC50, Myriophyllum spicatum, static test, 14 d, 0.00387 mg/l

NOEC, Myriophyllum spicatum, static test, 14 d, 0.000305 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, *Colinus virginianus* (Bobwhite quail), > 2000mg/kg bodyweight.

oral LD50, *Anas platyrhynchos* (Mallard duck), > 2000mg/kg bodyweight.

oral LD50, *Apis mellifera* (bees), 48 hrs, > 212.6µg/bee

contact LD50, *Apis mellifera* (bees), 48 hrs, > 200µg/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia andrei* (red worm), 14 d, > 1,000 mg/kg

Persistence and degradability**Halauxifen-methyl**

Biodegradability: For similar active ingredient(s). Halauxifen. Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 7.7 %

Exposure time: 28 d

Method: OECD Test Guideline 310 or Equivalent

Florasulam

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

Biodegradation: 2 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 0.85 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
	0.012 mg/mg

Stability in Water (1/2-life)

, > 30 d

Photodegradation

Atmospheric half-life: 1.82 Hour

Method: Estimated.

Kaolin

Biodegradability: Biodegradation is not applicable.

Titanium dioxide

Biodegradability: Biodegradation is not applicable.

Quartz

Biodegradability: Biodegradation is not applicable.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Halauxifen-methyl

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 3.76

Bioconcentration factor (BCF): 233 *Lepomis macrochirus* (Bluegill sunfish) 42 d

Florasulam

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -1.22

Bioconcentration factor (BCF): 0.8 Fish 28 d Measured

Titanium dioxide

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Quartz

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

Halauxifen-methyl

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient (Koc): 5684

Florasulam

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 4 - 54

Titanium dioxide

No data available.

Quartz

No relevant data found.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Florasulam, Halauxifen-methyl)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Florasulam, Halauxifen-methyl

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Florasulam, Halauxifen-methyl)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Florasulam, Halauxifen-methyl
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.(Florasulam, Halauxifen-methyl)
UN number	UN 3077
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act (PCPA) Registration Number: 31304

16. OTHER INFORMATION

Hazard Rating System

NFPA

Health	Fire	Reactivity
1	1	0

Revision

Identification Number: 101205083 / A215 / Issue Date: 08/24/2017 / Version: 1.5

DAS Code: GF-2687

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA ON OEL	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
CA QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Dow IHG	Dow Industrial Hygiene Guideline
TWA	8-hour time weighted average
TWAEV	Time-weighted average exposure value

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

(Container)

GROUP	4	HERBICIDE
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PERIMETER[®] II

Herbicide

PERIMETER II Herbicide is a selective herbicide for postemergent control of annual broadleaved weeds including cleavers and certain ALS-resistant broadleaved weeds such as kochia in spring wheat, durum wheat, winter wheat, spring barley and oats. PERIMETER II Herbicide will also suppress hemp-nettle, common chickweed and wild buckwheat.

AGRICULTURAL

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: fluroxypyr, present as 1-methylheptyl ester 333 g a.e./L

Emulsifiable concentrate

REGISTRATION NO. 30094 PEST CONTROL PRODUCTS ACT

WARNING
EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

NET CONTENTS: 1 L - bulk

FMC of Canada Limited
6755 Mississauga Road, Suite 204
Mississauga, ON L5N 7Y2
1-833-362-7722

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

Causes eye irritation. DO NOT get in eyes. May irritate the skin. Avoid contact with skin. Potential skin sensitizer.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Do not use in residential areas. Residential areas are defined as any use site where bystanders including children could be exposed during or after application. This includes homes, schools, parks, playgrounds, playing fields, public buildings, or any other area where the general public including children could be exposed.

Apply only when potential for drift to areas of human habitation or activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversion, application equipment and sprayer setting.

PROTECTIVE CLOTHING AND EQUIPMENT

Wear a hat, coveralls over a long-sleeved shirt and long pants, socks, rubber boots or work boots and chemical-resistant gloves during spraying or application. In addition, wear goggles or face shield during mixing, loading, repair and clean-up or when handling the concentrate. Applicators using a closed cab are not required to wear chemical-resistant gloves.

OPERATOR USE PRECAUTIONS

Wear freshly laundered clothing and clean protective equipment daily. At completion of spraying or end of the day take a shower immediately. Wash thoroughly with soap and water before eating, drinking, smoking or using the toilet. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse. If herbicide penetrates clothing, remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Avoid contact with eyes, skin and clothing. Avoid breathing spray mist.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Do not use or store near heat or open flame.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IN CASE OF EMERGENCY, CALL TOLL FREE, DAY OR NIGHT: 1-800-331-3148

TOXICOLOGICAL INFORMATION

THIS PRODUCT CONTAINS A PETROLEUM DISTILLATE. Vomiting may cause aspiration pneumonia. The decision of whether to induce vomiting or not should be made by the attending physician. If lavage is performed, suggest endotracheal and/or oesophageal control. Danger from lung aspiration of petroleum based solvents must be weighed against toxicity when considering emptying the stomach. No specific antidote. Employ supportive care. Treatment should be based on the judgment of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under APPLICATION DIRECTIONS. This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store in original containers in a secure, dry heated storage. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. To prevent contamination, store this product away from food or feed. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Refillable Containers:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

PERIMETER is a trademark of FMC Corporation or an affiliate.

(Booklet)

GROUP	4	HERBICIDE
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AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: fluroxypyr, present as 1-methylheptyl ester 333 g a.e./L

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PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

Causes eye irritation. DO NOT get in eyes. May irritate the skin. Avoid contact with skin. Potential skin sensitizer.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Do not use in residential areas. Residential areas are defined as any use site where bystanders including children could be exposed during or after application. This includes homes, schools, parks, playgrounds, playing fields, public buildings, or any other area where the general public including children could be exposed.

Apply only when potential for drift to areas of human habitation or activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversion, application equipment and sprayer setting.

PROTECTIVE CLOTHING AND EQUIPMENT

Wear a hat, coveralls over a long-sleeved shirt and long pants, socks, rubber boots or work boots and chemical-resistant gloves during spraying or application. In addition, wear goggles or face shield during mixing, loading, repair and clean-up or when handling the concentrate. Applicators using a closed cab are not required to wear chemical-resistant gloves.

OPERATOR USE PRECAUTIONS

Wear freshly laundered clothing and clean protective equipment daily. At completion of spraying or end of the day take a shower immediately. Wash thoroughly with soap and water before eating, drinking, smoking or using the toilet. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse. If herbicide penetrates clothing, remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Avoid contact with eyes, skin and clothing. Avoid breathing spray mist.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Do not use or store near heat or open flame.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

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AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under APPLICATION DIRECTIONS. This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store in original containers in a secure, dry heated storage. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. To prevent contamination, store this product away from food or feed. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Refillable Containers:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

PERIMETER II Herbicide is a selective postemergent herbicide for the control of annual broadleaved weeds in spring wheat, durum wheat, winter wheat, spring barley, and oats, not underseeded with legumes. PERIMETER II Herbicide offers a novel mode of action for controlling hard-to-kill annual broadleaved weeds such as kochia (including ALS resistant biotypes) and cleavers. PERIMETER II Herbicide will also provide suppression of hempnettle, wild buckwheat and chickweed.

MODE OF ACTION

PERIMETER II Herbicide is a systemic auxin-type herbicide and moves within the plant for control of exposed and underground plant tissues. The product controls weeds by disrupting normal plant growth patterns. Symptoms of weeds include epinasty (twisting of the stems) and swollen nodes.

GENERAL USE PRECAUTIONS

Sensitive Plants

Do not apply PERIMETER II Herbicide directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

Non-Target Sites

Do not apply where proximity of susceptible crops or other desirable plants is likely to result in exposure to spray or spray drift. See Environmental Hazards section of the label.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Field sprayer application

DO NOT apply during period of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing or rotor span.

Crop Rotation

Fields previously treated with PERIMETER II Herbicide can be seeded the following year to alfalfa, barley, canola, corn, dry beans, faba beans, flax, forage grasses, lentils, mustard, oats, peas, potatoes, rye, soybeans, sugar beets, sunflowers or wheat or fields can be summerfallowed.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact FMC at 1-833362-7722 for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by FMC.

Spray Equipment Precaution

Do not apply through any type of irrigation system.

To Reduce Spray Drift

- Use nozzles delivering higher volumes and coarser droplets.
- Use low pressures (200 to 275 kPa).
- Spray when the wind velocity is 15 km/hr or less.
- Spot treatments should only be applied with a calibrated boom to prevent over-application.
- Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Equipment Clean-Up

Equipment used to apply PERIMETER II Herbicide should not be used to apply other pesticides to sensitive crops without thorough cleaning. Contact your PERIMETER II Herbicide dealer for detailed equipment cleaning procedures.

DIRECTIONS FOR USE

READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. DO NOT APPLY TO CROPS UNDERSEEDDED WITH LEGUMES.

Crops Registered

spring wheat
durum wheat
winter wheat
spring barley
oats

PERIMETER II HERBICIDE ALONE

Apply PERIMETER II Herbicide with ground or aerial application equipment (see Application directions section) for postemergent control of cleavers and kochia, including ALS resistant kochia and other broadleaved weeds infesting spring wheat, durum wheat, winter wheat, spring barley and oats. See following table for weeds controlled/suppressed and applications rates.

Weeds Controlled or Suppressed By PERIMETER II Herbicide Alone

Weeds Controlled	PERIMETER II Herbicide Rate (L/ha)
chickweed* (up to 8 cm)	0.41
cleavers (1-6 whorls)	0.21
cleavers (1-8 whorls)	0.31
kochia* (2-8 leaf)	0.31
round-leaved mallow (1-6 leaf)	0.41
volunteer flax (1-12 cm)	0.31
Weeds Suppressed	PERIMETER II Herbicide Rate (L/ha)
hempnettle (2-6 leaf)	0.41
stork's-bill (1-8 leaf)	0.31
wild buckwheat (1-8 leaf)	0.21

*Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.

NOTE: PERIMETER II Herbicide activity is influenced by weather conditions. Optimum activity requires active crop and weed growth. The temperature range for optimum activity is 12°C to 24°C. Reduced activity will occur when temperatures are below 8°C or above 27°C. Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during

stress conditions, e.g. drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist.

Application Timing

Apply to actively growing spring wheat, durum wheat, spring barley and oats from the 2-leaf crop growth stage up to and including initiation of stem elongation. Apply to winter wheat in the spring from the 3 tiller stage to just before the flag leaf stage. Apply when weeds are actively growing. Best results are obtained from applications made to seedling weeds. Only weeds emerged at the time of treatment will be controlled. Extreme growing conditions such as drought or near freezing temperature prior to, at and following time of application may reduce weed control and increase the risk of crop injury at all stages of growth. Foliage that is wet at the time of application may decrease control. PERIMETER II Herbicide applications are rainfast within 1 hour after application. Under conditions of low crop and high weed density, control may be reduced.

Preharvest/Grazing Intervals (PERIMETER II Herbicide applied alone)

- Livestock may be grazed on treated crops 3 days following application.
- Do not harvest the treated crop within 60 days after application.

APPLICATION DIRECTIONS (GROUND AND AERIAL APPLICATIONS)

(1) Ground Application

Using ground equipment, apply PERIMETER II Herbicide alone or with tank mix partners as a broadcast treatment. Apply PERIMETER II Herbicide alone at the recommended rates in a spray volume of 50-100 L water/ha. When tank mixing refer to the label of the tank mix partner label for additional instructions, water volumes, precautions and weeds controlled.

(2) Aerial Application

Do not use human flaggers.

Use PERIMETER II Herbicide alone or tank mixed with a product registered for aerial application as a broadcast treatment. Apply the recommended rates of PERIMETER II Herbicide and tank mix partner as indicated elsewhere on this label. Apply in a spray volume of 30-50 L water/ha. Refer to the tank mix partner label for additional instructions, precautions and weeds controlled.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate swath marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-833-362-7722 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

- The interaction of many equipment-and-weather-related factors determine the potential for spray drift. Users are responsible for considering all these factors when making decisions.

The following drift management requirement must be followed to avoid off-target drift movement from aerial applications: Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

TANK-MIX COMBINATIONS - PERIMETER II HERBICIDE + LIQUID ACHIEVE SC HERBICIDE OR ACHIEVE LIQUID HERBICIDE

For control of wild oats and green foxtail in spring wheat, winter wheat and spring barley apply 0.5 L/ha of Liquid Achieve SC or Achieve Liquid with PERIMETER II Herbicide. Refer to the above table for rates and broadleaved weeds controlled or suppressed with PERIMETER II Herbicide. Read both product labels thoroughly for more information on precautions and additional directions for use. To control additional broadleaved weeds tank mix with either 2,4-D ester or MCPA ester up to a maximum of 560 g ae/ha. (equivalent to 1.0 L/ha of 2,4-D LV600 Herbicide (0.85 L/ha 2,4-D Ester 700 Herbicide) or 1.12 L/ha of MCPA LV500 Herbicide) (0.93 L/ha MCPA Ester 600 Herbicide) or 1.5 to 2.0 L/ha Curtail M Herbicide. Refer to the 2,4-D ester or MCPA ester tank mix partner label for rates less than 560 g ae/ha and weeds controlled.

Mixing Instructions

1. Begin to fill sprayer tank with clean water, and engage agitator. **Agitation must be continued throughout the entire mixing and spraying procedure.**
2. When the sprayer is three quarters full of water, add Liquid Achieve SC or Achieve Liquid. If more than one container of Liquid Achieve SC or Achieve Liquid is to be used, add all Liquid Achieve SC or Achieve Liquid containers prior to adding PERIMETER II Herbicide.
3. Add PERIMETER II Herbicide next. If more than one container of PERIMETER II Herbicide is to be used, add all PERIMETER II Herbicide containers prior to adding any other tank-mix partners.
4. If 2,4-D ester, MCPA ester or Curtail M are also being added, add these next. If more than one container of 2,4-D ester, MCPA ester or Curtail M is to be used, add all 2,4-D ester, MCPA ester or Curtail M containers prior to adding Turbocharge D or Turbocharge.
5. Lastly, add the required amount of Turbocharge D or Turbocharge and then continue to fill tank to desired level with water.

TANK-MIX COMBINATIONS - PERIMETER II HERBICIDE+ CURTAIL M HERBICIDE

PERIMETER II Herbicide mixed with Curtail M Herbicide will control a wide spectrum of broadleaf weeds. Refer to Curtail M Herbicide label for additional precautions and directions for use, particularly crop rotation restrictions.

Mixing Instructions

Add the correct amount of PERIMETER II Herbicide to spray tank 1/2 filled with water and agitate. Add the correct amount of Curtail M Herbicide and continue to agitate.

Timing of Application

Apply postemergence when weeds are in the seedling stage (2-4 leaf) and when spring wheat, durum wheat, spring barley and oats are in the 3-leaf to just before the flag leaf emergence stage. Apply to winter wheat in the spring from the 3 tiller stage to just before the flag leaf stage. Do not apply later than the flag-leaf stage.

Low Rate: To control or suppress the following weeds apply a uniform spray containing PERIMETER II Herbicide at 0.31 L/ha tank mixed with Curtail M Herbicide at 1.5 L/ha.

Weeds Controlled

Canada thistle (low infestations)	mustard, wild
cleavers (1-8 whorls)	shepherd's-purse
flax, volunteer (1-12 cm)	stinkweed
flixweed (spring seedling 2-4 leaf)	sunflower, volunteer
kochia***	wild buckwheat (1-8 leaf)
lamb's-quarters	

Weeds Suppressed

stork's-bill (1-8 leaf)

High Rate: To control or suppress the following weeds apply a uniform spray containing PERIMETER II Herbicide at 0.41 L/ha tank mixed with Curtail M Herbicide at 2.0 L/ha.

Weeds Controlled

Canada thistle*	lamb's-quarters	sow-thistle (annual)
canola (volunteer)	redroot pigweed	sow-thistle (perennial) *
cleavers (1-8 whorls)	round-leaved mallow (1-6 leaf)	stinkweed
common chickweed*	Russian pigweed	stork's-bill (1-8 leaf)
common groundsel	scentless chamomile	sunflower (volunteer)
dandelion**	shepherd's-purse	tartary buckwheat
flixweed**	smartweed	volunteer flax (1-12 cm)
hemp-nettle (2-6 leaf stage)		wild buckwheat (1-8 leaf)
kochia***		wild mustard

* Season long control, with some regrowth in the fall (top growth control).

** Spring rosettes only.

*** Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.

The active ingredients in this tank mixture will only control chickweed that is emerged at TIME OF application. Chickweed plants which emerge after application will not be controlled. To improve the reduction in chickweed population at the end of season, delay the timing of application as late as possible to when the majority of chickweed plants have emerged. The reduction in chickweed population will also be improved in crops which are more competitive and which allow limited light penetration.

Pre-Harvest/Grazing Intervals (PERIMETER II Herbicide + Curtail M Herbicide)

- Do not cut or graze treated fields within 7 days after application.
- Do not harvest the treated mature crop within 60 days after application.

When tank mixing with Curtail M Herbicide, wear goggles or face shield, coveralls and chemically resistant gloves, apron and boots when mixing, loading and during clean-up and repair.

Curtail M Herbicide contains an ingredient that is rapidly absorbed through the skin and respiratory tract.

TANK MIXES WITH PERIMETER II HERBICIDE + CURTAIL M HERBICIDE FOR ANNUAL GRASS CONTROL (do not apply to oats)

Tank mixtures of PERIMETER II Herbicide + Curtail M Herbicide with other herbicides will provide control of additional weeds. See following table for tank mixes with PERIMETER II Herbicide + Curtail M Herbicide. Follow all precautions, minimal interval to harvest and directions for use on the PERIMETER II Herbicide and tank-mix partner labels.

Tank-Mix Combinations with PERIMETER II Herbicide at 0.31 L/ha + Curtail M Herbicide at 1.5 L/ha or PERIMETER II Herbicide at 0.41 L/ha + Curtail M Herbicide at 2.0 L/ha

Herbicide Tank-Mix Partner	Crops Registered	Rate of Tank-Mix Partner	Adjuvant Rate	Additional Weeds
Liquid Achieve SC or Achieve Liquid	spring wheat, durum wheat, winter wheat, spring barley	0.5 L/ha	Turbocharge D or Turbocharge 0.5 L/100 L of spray volume (0.5% v/v)	green foxtail wild oats
Horizon Herbicide Tank-Mix	spring wheat, durum wheat	0.23 L/ha	Score 0.8 L/ha (0.8% v/v)	green foxtail wild oats
Assert 300 SC	spring wheat, durum wheat, spring barley	1.3 L/ha 1.6 L/ha	Refer to Assert 300 SC label	wild oats (1-3 leaf) wild oats (4 leaf)
Puma 120 Super	spring wheat, durum wheat, spring barley	385 mL/ha 770 mL/ha	None required	green foxtail only green foxtail, wild oats & barnyard grass
Everest 70 WDG or Everest Solupak 70 DF	spring wheat, durum wheat	43 g/ha	Refer to Everest label	green foxtail wild oats

TANK-MIX COMBINATION - PERIMETER II HERBICIDE + 2,4-D ESTER HERBICIDE (do not apply to oats)

For control of a wide spectrum of broadleaved weeds (see following table) apply PERIMETER II Herbicide tank mixed with 2,4-D ester herbicide. Apply postemergence when weeds are in the seedling stage (2-4 leaf) and when spring wheat, durum wheat, winter wheat and spring barley are in the 4-leaf to flag-leaf stage. Apply to winter wheat in the spring from the 3 tiller stage to just before the flag leaf stage. Application before the 4-leaf stage of wheat and barley may cause severe twisting of leaves and stem, and head deformities which may reduce yield up to 10%. Do not apply later than the flag-leaf stage.

Rates of Applications

I. Low Rate: To control the following weeds apply a uniform spray containing 0.23 L/ha PERIMETER II Herbicide and 420 g a.e./ha 2,4-D ester herbicide (equivalent to 0.64 L/ha of 2,4-D Ester LV700 Herbicide).

Weeds Controlled

bluebur	hoary cress*	stinkweed
burdock	kochia***	sunflower (annual)
canola (volunteer)	lamb's-quarters	vetch
cleavers (1-6 whorls)	mustards (except green, dog & tansy)	wild radish
clovers (sweet)	plantain	wild mustard
cocklebur	prickly lettuce	wild buckwheat (1-6 leaf)
flixweed	ragweed	
field horsetail*	shepherd's-purse	
goat's-beard		

II. High Rate: To control the above weeds plus the additional weeds listed below, apply a uniform spray containing 0.31 L/ha of PERIMETER II Herbicide and 560 g a.e./ha of 2,4-D ester herbicide (equivalent to 0.85 L/ha of 2,4-D Ester LV700 Herbicide).

Additional Weeds Controlled:

blue lettuce*	hairy galinsoga	Russian thistle
cleavers (1-8 whorls)	hedge bindweed	smartweed
dandelion**	lady's-thumb	stork's-bill (1-8 leaf)
docks	leafy spurge*	tansy mustard
dog mustard	oak-leaved goosefoot	tartary buckwheat
field bindweed*	redroot pigweed	volunteer flax (1-12 cm)
field peppergrass	round-leaved mallow (1-6 Leaf)	wild buckwheat (1-8 leaf)
gumweed		

Weeds Suppressed:

common chickweed*** (up to 8 cm) hemp-nettle (2-6 leaf stage) sow-thistle (perennial) *
Canada thistle* sow-thistle (annual)

* Top growth control only

** Spring rosettes

*** Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme

NOTE: The activity of PERIMETER II Herbicide combined with 2,4-D ester herbicide is influenced by weather conditions. Optimum activity requires active crop and weed growth. The temperature range for optimum activity is 12°C to 24°C. Reduced activity will occur when temperatures are below 8°C or above 27°C. Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions, e.g. drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist.

Mixing Instructions

Add the correct amount of PERIMETER II Herbicide to spray tank 1/2 filled with water and agitate. Add the correct amount of 2,4-D ester herbicide (e.g. 2,4-D Ester LV700 Herbicide) and continue to agitate.

Pre-Harvest/Grazing Intervals (PERIMETER II Herbicide + 2,4-D ester herbicide)

- Do not permit lactating dairy animals to graze fields within 7 days after application.
- Do not harvest forage or cut hay within 30 days after application.
- Withdraw meat animals from treated fields at least 3 days before slaughter.
- Do not harvest the treated mature crop within 60 days after application.

TANK-MIX COMBINATIONS - PERIMETER II HERBICIDE + 2,4-D ESTER HERBICIDE + OTHER HERBICIDES (do not apply to oats)

Tank mixtures of PERIMETER II Herbicide + 2,4-D ester herbicide with other herbicides will provide control of additional weeds. For products which may be tank mixed with PERIMETER II Herbicide + 2,4-D ester herbicide and the additional weeds controlled see following table. Follow all precautions, minimal interval to harvest and directions for use on the PERIMETER II Herbicide and tank-mix partner labels.

Tank-Mix Combinations with PERIMETER II Herbicide (0.31 L/ha) + 2,4-D ester herbicide (560 g a.e./ha) or PERIMETER II Herbicide (0.23 L/ha) + 2,4-D ester herbicide (420 g a.e./ha)

Herbicide Tank-Mix Partner	Crops Registered	Rate of Tank-Mix Partner	Adjuvant Rate	Additional Weeds
Liquid Achieve SC or Achieve Liquid***	spring wheat, durum wheat, winter wheat, spring barley	0.5 L/ha	Turbocharge D or Turbocharge 0.5 L/100 L of spray volume (0.5% v/v)	green foxtail, wild oats
Horizon Herbicide Tank-mix	spring wheat, durum wheat	0.23 L/ha	Score: 0.8 L/ha (0.8% v/v)	wild oats** (1-6 leaf main stem)
		0.29 L/ha	Score: 1.0 L/ha (1.0% v/v)	green foxtail (1-5 leaf main stem) & wild oats**
Assert 300 SC	spring wheat, durum wheat, spring barley	1.3 L/ha	Refer to Assert 300 SC label	wild oats (1-3 leaf stage)
		1.6 L/ha		wild oats (4 leaf stage)
Puma 120 Super	spring wheat, durum wheat	385 mL/ha	None required	green foxtail only
		770 mL/ha		green foxtail, plus wild oats & barnyard grass
Simplicity***	spring wheat, durum wheat, winter wheat	0.5 L/ha	None required	barnyard grass (1-5 leaf), common chickweed (up to 10 cm), hemp nettle (1-8 leaf), Japanese brome (1-6 leaf), wild oats (up to 4 leaf, 2 tiller), wild buckwheat (1-4 leaf)
Everest 70 WDG or Everest Solupak 70 DF	spring wheat, durum wheat	43 g/ha	Refer to Everest label	green foxtail wild oats

*This tank-mix may cause temporary crop injury. However, yield will not normally be affected. This tank-mix may reduce control of wild oats compared to Liquid Achieve SC or Achieve Liquid Herbicide alone.

**Wild oat control may be reduced when tank mixed with PERIMETER II Herbicide + 2,4-D ester herbicide

***Tank mixing with Simplicity only applies to the low rate of PERIMETER II Herbicide + 2,4-D ester herbicide

TANK-MIX COMBINATIONS – PERIMETER II HERBICIDE + 2,4-D ESTER HERBICIDE + REFINE EXTRA® 75 DF HERBICIDE OR REFINE EXTRA 75 TOSS-N-GO® HERBICIDE OR REFINE® SG HERBICIDE OR REFINE SG TOSS-N-GO HERBICIDE (do not apply to oats)

Spring Wheat (excluding durum) and spring barley

For control of a wide spectrum of broadleaf weeds, including cleavers, PERIMETER II Herbicide may be tank mixed with 2,4-D ester herbicide and Refine Extra 75 DF Herbicide or Refine Extra 75 Toss-N-Go Herbicide or Refine SG Herbicide or Refine SG Toss-N-Go Herbicide. Apply PERIMETER II Herbicide

at 0.16 L/ha tank mixed with Refine Extra 75 DF Herbicide or Refine Extra 75 Toss-N-Go Herbicide at 20 g/ha, or Refine SG Herbicide or Refine SG Toss-N-Go Herbicide at 30 g/ha, 2,4-D ester herbicide at 280 g a.e./ha (equal to 0.5 L/ha of 2,4-D Ester LV 600 or 0.42 L/ha of 2,4-D Ester LV 700) and a non-ionic surfactant (Agral 90, Ag-Surf or Citowett Plus) at 2 L per 1000 L of spray solution. A spray volume of 100 L/ha should be utilized. Apply postemergence when weeds are in the seedling up to 4-leaf/whorls stage, and when spring wheat (excluding durum) and spring barley are in the 4-leaf to flag-leaf stage. **Do not apply to crops underseeded to legumes.**

Weeds Controlled or Suppressed

Weeds Controlled:

annual smartweed (green smartweed, lady's thumb)	groundsel (common)	shepherd's purse
ball mustard	hemp-nettle	stinkweed
chickweed (1-6 leaf) ¹	kochia ³	tartary buckwheat
cleavers ²	lamb'-quarters	volunteer rapeseed ⁴
corn spurry	narrow-leaved hawk's beard	volunteer sunflower
cow Cockle	redroot pigweed	wild buckwheat ⁵
flixweed	Russian thistle	wild mustard

¹ Spray before crop canopy prevents thorough coverage of weeds. Chickweed emerging after application will not be controlled.

² Excluding Group 2 resistant cleavers

³ Excluding Group 2 resistant kochia

⁴ The tank-mix will not control imazethapyr tolerant canola varieties (e.g. Clearfield varieties or other varieties with the Pursuit Smart trait)

⁵ Apply to actively growing wild buckwheat from the cotyledon to 3-leaf stage. Control may be reduced under environmental stress. Large plants may regrow after treatment

Weeds Suppressed:

Canada thistle ⁶	sow thistle ⁶
round leaved mallow (2-6 leaf) ⁷	stork's Bill (2-6 leaf)
scentless chamomile	toadflax (to 15 cm) ⁸

⁶ Apply when most of the thistles have emerged and are actively growing. Apply before bud stage, and before crop canopy prevents thorough coverage of thistles, when thistles are no larger than 15 cm in height for best top growth control. A single application will effectively inhibit the ability of emerged thistles to compete with the crop. Later emerging thistles will not be controlled.

⁷ Apply to actively growing round leaved mallow. Will keep mallow stunted, but may not be able to reduce overall populations.

⁸ A control program for this weed includes chemical application and frequent tillage.

Mixing Instructions

Fill the tank to 1/3 full of clean water. With agitator running, add required amount of Refine Extra 75 DF Herbicide or Refine Extra 75 Toss-N-Go Herbicide or Refine SG Herbicide or Refine SG Toss-N-Go Herbicide and continue to agitate for a minimum of 5 minutes to ensure the Refine Extra 75 DF Herbicide or Refine Extra 75 Toss-N-Go Herbicide or Refine SG Herbicide or Refine SG Toss-N-Go Herbicide is completely dissolved. After it is fully dissolved add the PERIMETER II Herbicide with continuous agitation. Add the 2,4-D ester herbicide and the rest of the water. Then add adjuvant. Use a spray volume of 100 L/ha. Consult the 2,4-D label for additional application instructions and use precautions.

Preharvest/Grazing Intervals (PERIMETER II Herbicide + Refine Extra + 2,4-D ester)

- Allow 7 days between application and grazing of lactating dairy animals.
- Do not harvest forage or cut hay within 30 days after application.
- Remove meat animals from treated fields at least 3 days prior to slaughter.
- Do not harvest the treated mature crop within 60 days after application.

TANK-MIX COMBINATION - PERIMETER II HERBICIDE+ MCPA ESTER HERBICIDE

For control of a wide spectrum of broadleaved weeds (see following table) apply PERIMETER II Herbicide at 0.31 L/ha tank mixed with MCPA LV500 Herbicide at 1.12 L/ha or MCPA Ester 600 Herbicide at 0.93 L/ha. Apply postemergence when weeds are in the seedling stage (2-4 leaf) and when spring wheat, durum wheat, spring barley and oats are in the 3-leaf to flag-leaf stage. Apply to winter wheat in the spring from the 3 tiller stage to just before the flag leaf stage. Application before the 3-leaf stage of wheat and barley may cause severe twisting of leaves and stem, and head deformities which may reduce yield up to 10%. Do not apply later than the flag-leaf stage. Do not apply to cereals underseeded with a legume.

Mixing Instructions

Add the correct amount of PERIMETER II Herbicide to spray tank 1/2 filled with water and agitate. Add the correct amount of MCPA ester herbicide and continue to agitate.

Weeds Controlled or Suppressed by PERIMETER II Herbicide + MCPA ester herbicide Tank-Mix

Weeds Controlled

burdock, common	hempnettle (2-6 leaf)	ragweed, common
canola, volunteer	kochia*	shepherd's-purse
cleavers (1-8 whorls)	lamb's-quarters	stinkweed
cocklebur	mustard (except dog & green tansy)	sunflower, annual
flax, volunteer (1-12 cm)	pigweed, redroot (1-4 leaf)	vetch
flixweed	prickly lettuce	wild radish
		wild buckwheat (1-8 leaf)

Weeds Suppressed

green smartweed
stork's-bill (1-8 leaf)

*Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.

Pre-Harvest/Grazing Intervals (PERIMETER II Herbicide + MCPA ester herbicide)

- Allow 7 days between application and grazing/cutting for hay.
- Do not harvest the treated mature crop within 60 days after application.

TANK-MIX COMBINATIONS - PERIMETER II HERBICIDE + MCPA ESTER HERBICIDE + OTHER HERBICIDES (do not apply to oats)

Tank mixtures of PERIMETER II Herbicide + MCPA ester herbicide with other herbicides will provide control of additional weeds. For products which may be tank mixed with PERIMETER II Herbicide + MCPA ester herbicide and the additional weeds controlled see following table. Follow all precautions, minimal interval to harvest and directions for use (including timing of application) on the PERIMETER II Herbicide and tank-mix partner labels.

Tank-Mix Combinations with PERIMETER II Herbicide (0.31 L/ha) + MCPA LV500 Herbicide (1.12 L/ha) or MCPA Ester 600 Herbicide (0.93 L/ha)

Herbicide Tank-Mix Partner	Crops Registered	Rate/ha	Adjuvant Rate	Additional Weeds
Liquid Achieve SC or Achieve Liquid*	spring wheat, durum wheat, winter wheat, spring barley	0.5 L/ha	Turbocharge D or Turbocharge 0.5 L/ha (0.5% v/v)	green foxtail wild oats
Horizon Herbicide Tank-mix	spring wheat, durum wheat	0.23 L	Score 0.8 L/ha (0.8% v/v)	wild oats
Assert 300 SC	spring wheat, durum wheat, spring barley	1.3 L	Refer to Assert 300 SC label	wild oats (1-3 leaf)
		1.6 L		wild oats (4 leaf)

Everest 70 WDG or Everest Solupak 70 DF	spring wheat, durum wheat	43 g/ha	Refer to Everest label	green foxtail wild oats
Puma 120 Super	spring wheat, durum wheat, spring barley	0.77 L	None required	wild oats

♦MCPA ester can be tank mixed at rates up to a maximum of 560 g ae/ha with this tank-mix combination.

TANK-MIX COMBINATION - PERIMETER II HERBICIDE+SIMPLICITY (do not apply to oats)

For control of a wide spectrum of broadleaf and grass weeds (see following table) in spring wheat, durum wheat and winter wheat, apply PERIMETER II Herbicide tank mixed with Simplicity. Apply post-emergence when weeds are actively growing: grass weeds up to the 4 leaf, 2 tiller stage and broadleaf weeds as indicated in the following table. Best results are obtained from applications made to seedling weeds. Apply to actively growing spring or durum wheat from the 3 leaf stage to the first node stage. Apply to winter wheat in the 2-7 leaf, 4 tiller stage with a spring application. Extreme growing conditions such as drought or near freezing temperature prior to, at, or following time of application may reduce weed control and increase the risk of crop injury at all stages of growth. Under conditions of low crop and high weed density, control may be reduced.

Mixing Instructions

Fill the sprayer tank ½ full of water and start sprayer tank agitation. Add the required amount of Simplicity. Add the correct amount of PERIMETER II Herbicide and continue to agitate.

Preharvest/Grazing Intervals (PERIMETER II Herbicide and Simplicity)

- Livestock may be grazed on treated crops 7 days following application.
- Do not harvest the treated crop within 60 days after application.

Rates of Application

I. Low Rate: To control or suppress the following weeds apply a uniform spray containing PERIMETER II Herbicide at 0.21 L/ha tank mixed with Simplicity at 375 mL/ha.

Weeds Controlled

cleavers (1-6 whorls)

wild oats (up to 4 leaf, 2 tiller) ♦

♦Under low wild oat populations (<75 plants/m²)

II. High Rate: To control the above weeds plus the additional weeds listed below, apply a uniform spray containing PERIMETER II Herbicide at 0.31 L/ha with Simplicity at 500 mL/ha.

Additional Weeds Controlled

barnyard grass (1-5 leaf)	kochia* (2-8 leaf)
chickweed, common (up to 10 cm)	red root pigweed (1-8 leaf)
cleavers (1-8 whorls)	smartweed (lady's thumb, 1-5 leaf)
foxtail, yellow (1-5 leaf)	volunteer canola♦♦ (1-6 leaf)
hemp nettle (1-8 leaf)	volunteer flax (1-12 cm)
Japanese brome (1-6 leaf)	

*Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.

♦♦ will not control volunteer Imidazolinone-tolerant canola

Additional Weeds Suppressed

brome, downy (2-6 leaf, 2 tillers)	storks-bill (1-8 leaf)
foxtail, green (1-5 leaf)	wild buckwheat (1-4 leaf)

TANK-MIX COMBINATIONS –PERIMETER II HERBICIDE + SIMPLICITY + OTHER HERBICIDES (do not apply to oats)

When tank mixing PERIMETER II Herbicide + Simplicity at either the low or high rates, the addition of other herbicides will provide control of additional weeds. For products which may be tank mixed with PERIMETER II Herbicide + Simplicity and the additional weeds controlled see following table. Follow all precautions, minimal interval to harvest and directions for use on the PERIMETER II Herbicide and tank-mix partner labels.

**Tank-Mix Combinations with PERIMETER II Herbicide (0.21 L/ha) + Simplicity Herbicide (375 mL/ha)
or PERIMETER II Herbicide (0.31 L/ha) + Simplicity herbicide (500 mL/ha)**

Herbicide Tank-Mix Partner	Crops Registered	Rate of Tank-Mix Partner	Additional Weeds Controlled
2,4-D ester*	spring wheat, durum wheat, winter wheat	Up to 420 g ae/ha	Susceptible weeds such as: mustard (except dog and green tansy), flixweed, bluebur, burdock, cocklebur, stinkweed, goatsbeard, prickly lettuce, lamb's-quarters, plantain, ragweeds, Russian thistle, shepherd's purse, annual sunflower, sweet clover, volunteer canola, wild buckwheat, wild radish *Consult 2,4-D ester labels for weed stages and rates
MCPA ester*	spring wheat, durum wheat, winter wheat	Up to 560 g ae/ha	Burdock (before the 4-leaf stage), cocklebur, flixweed, plantain, lamb's-quarters, mustards (except dog and tansy), prickly lettuce, ragweeds, Russian pigweed, shepherd's-purse, stinkweed, vetch, wild buckwheat, wild radish, wild (annual) sunflower. *Consult MCPA ester labels for weed stages and rates

BUFFER ZONES

Spot treatments using hand-help equipment DO NOT require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:				
		Freshwater Habitat of Depths:		Estuarine/marine Habitat of Depths:		Terrestrial habitat
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	

Field sprayer	Spring wheat, durum wheat, winter wheat, spring barley and oats		1	0	1	1	3
Aerial	Spring wheat, durum wheat, winter wheat, spring barley and oats	Fixed Wing	5	0	1	1	95
		Rotary Wing	3	0	1	1	80

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the [Buffer Zone Calculator](#) on the Pesticides section of the Canada.ca website.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, PERIMETER II Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to PERIMETER II Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of PERIMETER II Herbicide or other Group 4 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact FMC at 1-833-362-7722.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

PERIMETER and REFINE are trademarks of FMC Corporation or an affiliate.

All other products listed are registered trademarks of their respective companies.



Product Name:
Barricade® M Herbicide

Barricade® M Herbicide is combination package of three individual products.
Attached are the component product SDSs which make up Barricade® M Herbicide.

Barricade® SG	PCP # 29544
	SDS Date: 03/01/2018
	Ref: 130000139548

Perimeter™ II	PCP # 30094
	SDS Date: 03/01/2018
	Ref : 130000098373

MCPA ester (Nufarm)	PCP # 27803
	SDS Date: 12/21/2017

Please read the SDS to get a full understanding and complete understanding of all risks associated with each product before use.

Manufacturer/Distributor:

FMC Corporation
2929 Walnut Street
Philadelphia, PA 19104
USA

Telephone Numbers:

Product Information: 1 833-362-7722
Medical Emergency: 1-800-331-3148 (USA & Canada)
Preparation Date: April 15, 2020

Member of CropLife Canada

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This SDS adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : BARRICADE SG
Tradename/Synonym : THIFENSULFURON METHYL (Methyl 3-[[[(4-methoxy-6-methyl-1,3,5- triazin-2-yl)amino]carbonyl]amino] sulfonyl]-2-thiophenecarboxylate)
TRIBENURON METHYL (Methyl 2-[[[(4-methoxy-6-methyl-1,3,5-triazin- 2-yl)methylamino]carbonyl]- amino]sulfonyl] benzoate)

Product Use : Herbicide

Restrictions on use : Do not use product for anything outside of the above specified uses.
Manufacturer : FMC Corporation
2929 Walnut Street
Philadelphia, PA 19104
(215) 299-6000 (General Information)
msdsinfo@fmc.com (E-Mail General Information)

Medical Emergency : 1 800 / 331-3148 (ProPharma Group - U.S.A. & Canada)
1 651 / 632-6793 (ProPharma Group - All Other Countries - Collect)
For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 741-5970 (CHEMTREC - International)
1 703 / 527 3887 (CHEMTREC - Alternate)

SECTION 2. HAZARDS IDENTIFICATION

Product hazard category
Skin sensitisation Category 1B

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Label content

Pictogram

:



Signal word

: Warning

Hazardous warnings

: May cause an allergic skin reaction.

Hazardous prevention
measures

: Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves.
IF ON SKIN: Wash with plenty of water.
If skin irritation or rash occurs: Get medical advice/ attention.
Take off contaminated clothing and wash it before reuse.
Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Information presented in Section 2 conforms to the requirements of the Hazardous Products Regulations (HPR) and WHMIS 2015. See Section 15 for applicable information conforming to the requirements of the Pest Management Regulatory Agency (PMRA).

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration (% w/w)
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Tribenuron methyl	101200-48-0	25%
Thifensulfuron methyl	79277-27-3	25%
Sodium carbonate	497-19-8	10 - 15%
Trisodium phosphate dodecahydrate	10101-89-0	10 - 15%
Other Ingredients		20 - 30%

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

- General advice** : Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
See Section 1 for emergency phone numbers.
See Label for Additional Precautions and Directions for Use.
Information presented in Section 4 conforms to the requirements of the Hazardous Products Regulations (HPR) and WHMIS 2015. See Section 15 for applicable information conforming to the requirements of the Pest Management Regulatory Agency (PMRA).
- Inhalation** : Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
- Skin contact** : Take off all contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- Eye contact** : No specific intervention is indicated as the compound is not likely to be hazardous. Consult a physician if necessary.
- Ingestion** : No specific intervention is indicated as the compound is not likely to be hazardous. Consult a physician if necessary.
- Most important symptoms/effects, acute and delayed** : No applicable data available.
- Protection of first-aiders** : No applicable data available.
- Notes to physician** : No applicable data available.

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SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray, Dry chemical, Foam, Carbon dioxide (CO₂)
- Unsuitable extinguishing media : High volume water jet, (contamination risk)
- Specific hazards : No applicable data available.
- Special protective equipment for firefighters : Wear full protective equipment.
- Further information : (on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers/tanks with water spray.
Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

- Safeguards (Personnel) : Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Use personal protective equipment.
- Environmental precautions : Prevent material from entering sewers, waterways, or low areas.
- Spill Cleanup : Shovel or sweep up. Avoid dust formation. Dispose of in an approved container.
- Accidental Release Measures : Never return spills in original containers for re-use. Dispose of in accordance with local regulations.

SECTION 7. HANDLING AND STORAGE

- Handling (Personnel) : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Handling (Physical Aspects) : Keep away from heat and sources of ignition. Under severe dusting

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conditions, this material may form explosive mixtures in air.

Dust explosion class	: No applicable data available.
Storage	: Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in original container. Store in a cool, dry place. Keep out of the reach of children.
Storage period	: No applicable data available.
Storage temperature	: < 35 °C (< 95 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls	: Information presented in Section 8 conforms to the requirements of the Hazardous Products Regulations (HPR) and WHMIS 2015. See Section 15 for applicable information conforming to the requirements of the Pest Management Regulatory Agency (PMRA).
Personal protective equipment	
Skin and body protection	: Applicators and other handlers must wear: Long sleeved shirt and long pants Chemical-resistant gloves, Category A (such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber), all greater than or equal to 14 mils Shoes plus socks PPE required for early entry to treated areas that is permitted in accordance with Provincial and Territorial management programs, and that involves contact with anything that has been treated, such as plants, soil, or water, is: Coveralls Chemical resistant gloves made of any waterproof material Shoes plus socks
Protective measures	: Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. All chemical protective clothing should be visually inspected prior to use. Clothing and gloves should be replaced in case of chemical or physical damage or if contaminated.
Exposure Guidelines	
Exposure Limit Values	
	No data available

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state : solid
Form : solid, granular
Color : light brown

Odor : slight

Odor threshold : not determined

pH : 8.6 - 9.4

Melting point/freezing point : Melting point/range
Not available for this mixture.

Boiling point/boiling range : Boiling point/boiling range
Not applicable

Flash point : No applicable data available.

Evaporation rate : No applicable data available.

Flammability (solid, gas) : Does not sustain combustion.

Upper explosion limit : No applicable data available.

Lower explosion limit : 0.1 - 0.23 g/l

Vapor pressure : Not available for this mixture.

Vapor density : Not available for this mixture.

Density : at 22 °C (72 °F)

Specific gravity (Relative density) : No applicable data available.

Water solubility : soluble

Solubility(ies) : No applicable data available.

Partition coefficient: n-octanol/water : Not applicable

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Auto-ignition temperature	:	387 °C
Decomposition temperature	:	No applicable data available.
Viscosity, kinematic	:	No applicable data available.
Viscosity, dynamic	:	Not applicable
Phys-chem data	:	No other data to be specially mentioned.
Oxidizing Substance	:	The product is not oxidizing.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No hazards to be specially mentioned.
Chemical stability	:	The product is chemically stable under recommended conditions of storage, use and temperature. Stable at normal temperatures and storage conditions.
Possibility of hazardous reactions	:	No applicable data available.
Conditions to avoid	:	No applicable data available.
Incompatible materials	:	No materials to be especially mentioned.
Hazardous decomposition products	:	Hazardous combustion products: Carbon dioxide (CO ₂), Nitrogen oxides (NO _x)

SECTION 11. TOXICOLOGICAL INFORMATION**BARRICADE SG**

Inhalation 4 h Acute toxicity estimate	:	> 5 mg/l , Rat
Dermal Acute toxicity estimate	:	> 5,000 mg/kg , Rat
Oral Acute toxicity estimate	:	> 5,000 mg/kg , Rat
Skin irritation	:	No skin irritation, Rat
Eye irritation	:	No eye irritation, Rabbit
Sensitisation	:	The product is a skin sensitiser, sub-category 1B., Guinea pig
Further information	:	Information given is based on data on the components and the toxicology of similar products.

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Further information : Information presented in section 11 conforms to the requirements of the Hazardous Products Regulations (HPR) and WHMIS 2015. See Section 15 for applicable information conforming to the requirements of the Pest Management Regulatory Agency (PMRA).

Tribenuron methyl

Repeated dose toxicity : The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Oral - feed
Mouse
- 90 d
NOAEL: 500 mg/kg
Reduced body weight gain

Oral
Rat
- 28 d
Reduced body weight gain

Carcinogenicity : Not classifiable as a human carcinogen.
An increased incidence of tumours was observed in laboratory animals.
Target(s):
Mammary glands

Mutagenicity : Animal testing did not show any mutagenic effects.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Reproductive toxicity : No toxicity to reproduction

Thifensulfuron methyl

Repeated dose toxicity : The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Oral - feed
multiple species
-
Reduced body weight gain

Carcinogenicity : Animal testing did not show any carcinogenic effects.

Mutagenicity : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

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Animal testing did not show any mutagenic effects.

Reproductive toxicity : No toxicity to reproduction
Animal testing showed no reproductive toxicity.

Teratogenicity : Did not show teratogenic effects in animal experiments.
Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Sodium carbonate

Repeated dose toxicity : Inhalation
Rat
-
Respiratory tract irritation

Mutagenicity : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Evidence suggests this substance does not cause genetic damage in animals.

Reproductive toxicity : Animal testing showed no reproductive toxicity.

Teratogenicity : Animal testing showed no developmental toxicity.

Carcinogenicity

The carcinogenicity classifications for this product and/or its ingredients have been determined according to Hazardous Products Regulation (HPR), Subpart 6, 8.6.1. The classifications may differ from those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC as a carcinogen.

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Tribenuron methyl

96 h LC50 : *Oncorhynchus mykiss* (rainbow trout) 738 mg/l

120 h EC50 : *Pseudokirchneriella subcapitata* (microalgae) 0.11 mg/l

14 d EC50 : *Lemna gibba* (duckweed) 0.00425 mg/l

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48 h EC50	:	Daphnia magna (Water flea) > 894 mg/l
Thifensulfuron methyl		
96 h LC50	:	Oncorhynchus mykiss (rainbow trout) > 100 mg/l
14 d EC50	:	Lemna minor (duckweed) 0.0013 mg/l
48 h EC50	:	Daphnia magna (Water flea) 470 mg/l
28 d	:	NOEC Americamysis bahia (mysid shrimp) 7.93 mg/l
Sodium carbonate		
96 h LC50	:	Lepomis macrochirus (Bluegill sunfish) 300 mg/l
48 h LC50	:	Ceriodaphnia dubia (water flea) 200 - 227 mg/l
4 d	:	EC50 Daphnia magna (Water flea) 228 - 297 mg/l
Trisodium phosphate dodecahydrate		
96 h EC50	:	Gambusia affinis (Mosquito fish) 151 mg/l
96 h EC50	:	Daphnia magna (Water flea) 126 mg/l
Environmental Fate		
Sodium carbonate		
Biodegradability	:	The methods for determining biodegradability are not applicable to inorganic substances.
Bioaccumulation	:	Does not bioaccumulate.
Additional ecological information	:	Environmental Hazards: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal methods - Product : Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Waste disposal methods - : Container Refilling and Disposal:

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Container Refer to the product label for instructions.
The container must only be refilled with this pesticide product.
DO NO REUSE THE CONTAINER FOR ANY OTHER PURPOSE.
Do not transport if this container is damaged or leaking.

In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

Contaminated packaging : No applicable data available.

SECTION 14. TRANSPORT INFORMATION

IATA_C	UN number	: 3077
	Proper shipping name	: Environmentally hazardous substance, solid, n.o.s. (Tribenuron methyl, Thifensulfuron-methyl)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9MI
IMDG	UN number	: 3077
	Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Tribenuron methyl, Thifensulfuron-methyl)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
	Marine pollutant	: yes (Tribenuron methyl, Thifensulfuron-methyl)

Not regulated as a hazardous material by DOT.

Not regulated as a hazardous material by TDG.

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA special provision A197, and ADR/RID special provision 375.

SECTION 15. REGULATORY INFORMATION

PCP Registration # : 29544

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Other regulations : The approved pest control product label (the label), under the Pest Control Products Act, needs to be followed at all times and in cases where there are any discrepancies between the approved label and an SDS for that product it is the label information that prevails.

This Safety Data Sheet is for a pesticide product registered by the Pest Management Regulatory Agency (PMRA), and is therefore also subject to certain requirements under Canadian pesticide laws, including the Pest Control Products Act (PCPA). These requirements differ from the classification criteria and hazard information required by the Hazardous Product Regulations (HPR) and WHMIS 2015 for safety data sheets, and for workplace labels of non-pesticide chemicals. The following information is determined by PMRA.

May cause sensitisation by skin contact. Avoid breathing spray mist. May be harmful if swallowed, in contact with skin or if inhaled. Causes eye and skin irritation.

SECTION 16. OTHER INFORMATION

MSDS preparation date : 03/01/2018

® Registered trademark of FMC Corporation

Contact person : FMC Corporation
2929 Walnut Street
Philadelphia, PA 19104
(215) 299-6000 (General Information)
msdsinfo@fmc.com (E-Mail General Information)

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Significant change from previous version is denoted with a double bar.

BARRICADE SG

Version 1.0

Revision Date 03/01/2018

Ref. 130000139548



Material Safety Data Sheet

Issue Date: 03/01/2018

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **Perimeter II Herbicide**

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

FMC Corporation
2929 Walnut Street
Philadelphia, PA 19104
(215) 299-6000 (General Information)
msdsinfo@fmc.com (General Information)

Medical Emergency:

1 800 / 331-3148 (ProPharma Group - U.S.A. & Canada)
1 651 / 632-6793 (ProPharma Group - All Other Countries - Collect)

For leak, fire, spill or accident emergencies, call:

1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 741-5970 (CHEMTREC - International)
1 703 / 527 3887 (CHEMTREC - Alternate)

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid

Color Yellow

Odor Spicy

Hazard Summary

WARNING!!

May cause allergic skin reaction.
May cause eye irritation.
Isolate area.
Toxic fumes may be released in fire situations.

Potential Health Effects

Eyes: May cause moderate eye irritation.
May cause slight corneal injury.

Skin: Has demonstrated the potential for contact allergy in mice.
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Brief contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

Inhalation: No adverse effects are anticipated from single exposure to mist.
Based on the available data, respiratory irritation was not observed.

Ingestion: Very low toxicity if swallowed.
Harmful effects not anticipated from swallowing small amounts.

Chronic Exposure: For the active ingredient(s):
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Based on information for component(s):
In animals, effects have been reported on the following organs:
Kidney.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent
Fluroxypyr 1-methylheptyl ester	81406-37-3	45.52%
Heavy aromatic naphtha	64742-94-5	>= 0.7 - <= 2.6 %
N-Methyl-2-pyrrolidone	872-50-4	0.1%
Balance	Not available	>= 51.8 - <= 53.7 %

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be available in work area.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment. Skin contact may aggravate preexisting dermatitis.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Fluroxypyr 1-methylheptyl ester	Dow IHG	TWA	10 mg/m ³
N-Methyl-2-pyrrolidone	US WEEL	TWA	10 ppm
	US WEEL	TWA	Absorbed via skin
	CA ON OEL	TWA	400 mg/m ³
	US WEEL	TWA	Absorbed via skin

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid
Color	Yellow
Odor	Spicy
Odor Threshold	No test data available
pH	4.58 1% ASTM E70
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	closed cup > 100 °C ASTM D3278
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	1.05

Water solubility	emulsifiable
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	358 °C <i>EC Method A15</i>
Decomposition temperature	No test data available
Dynamic Viscosity	28.2 mPa.s at 40 °C <i>OECD 114</i>
Kinematic Viscosity	No test data available
Explosive properties	No <i>EEC A14</i>
Oxidizing properties	no data available
Liquid Density	1.05 g/cm ³ at 20 °C <i>OECD 109</i>
Molecular weight	No test data available
Surface tension	32 mN/m at 25 °C <i>EC Method A5</i>

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Unstable at elevated temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: None known.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrogen chloride. Hydrogen fluoride. Nitrogen oxides. Toxic gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:

LD50, Rat, female, > 5,000 mg/kg No deaths occurred at this concentration.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, Rat, male and female, > 5,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Based on the available data, respiratory irritation was not observed.

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.50 mg/l

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

May cause drying and flaking of the skin.

Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight corneal injury.

Sensitization

As product:

Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

For the major component(s):

For similar material(s):

In animals, effects have been reported on the following organs:

Kidney.

For the minor component(s):

In animals, effects have been reported on the following organs:

Lung.

Gastrointestinal tract.

Thyroid.

Urinary tract.

Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Carcinogenicity

For similar active ingredient(s). Fluroxypyr-meptyl. Did not cause cancer in laboratory animals.

Teratogenicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals. For the minor component(s): N-methyl pyrrolidone has caused toxic effects to the fetus in laboratory animals at high dose levels with either mild or undetectable maternal toxicity.

Reproductive toxicity

For the active ingredient(s): In animal studies, did not interfere with reproduction.

Mutagenicity

As product: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Toxicity**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), flow-through test, 96 Hour, 14.3 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, 20 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), static test, 72 Hour, Growth rate inhibition, 9.6 mg/l, OECD Test Guideline 201

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, *Colinus virginianus* (Bobwhite quail), > 2,250 mg/kg

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d, survival, > 1,000 mg/kg

Persistence and degradability**Fluroxypyr 1-methylheptyl ester**

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

Biodegradation: 32 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 2.2 mg/mg

Stability in Water (1/2-life)

, half-life, 454 d

Heavy aromatic naphtha

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

N-Methyl-2-pyrrolidone

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 91 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 2.58 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 0.486 d

Method: Estimated.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Fluroxypyr 1-methylheptyl ester

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 5.04 Measured

Bioconcentration factor (BCF): 26 Oncorhynchus mykiss (rainbow trout) Measured

Heavy aromatic naphtha

Bioaccumulation: For similar material(s): Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

N-Methyl-2-pyrrolidone

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -0.38 Measured

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

Fluroxypyr 1-methylheptyl ester

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient(Koc): 6200 - 43000

Heavy aromatic naphtha

No relevant data found.

N-Methyl-2-pyrrolidone

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 21 Estimated.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TD ;

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Fluroxypyr)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Fluroxypyr

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Fluroxypyr)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Fluroxypyr
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Fluroxypyr)
UN number	UN 3082
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act Registration Number: 30094

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	1	1

Revision

Identification Number: 101188173 / A215 / Issue Date: 03/01/2018 / Version: 5.3

DAS Code: GF-1784

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

Absorbed via skin	Absorbed via skin
CA ON OEL	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
Dow IHG	Dow Industrial Hygiene Guideline
TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References

The information in this Safety Data Sheet is based entirely on information from FMC Corporation.

This SDS is prepared by the Global Regulatory Chemical Compliance team in the Global Regulatory Affairs Group from information supplied by internal references within our company.

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Nufarm MCPA Ester 600 Liquid Herbicide Safety Data Sheet

Issue Date: 2017-12-21

Supersedes Date: 2017-05-17

{Reserved}

1. Identification

Product Name: Nufarm MCPA Ester 600 Liquid Herbicide

PCP Registration No.: 27803

Refer to the approved product label for handling and use instructions.

Product Type: Herbicide

Supplier: Nufarm Agriculture Inc.
Suite 350, 2618 Hopewell Place NE
Calgary, Alberta, T1Y 7J7, Canada
1-800-868-5444

Telephone Numbers: 24 Hour Emergency Response Number, Chemtrec, 1-800-424-9300.
For medical emergencies, ProPharma Group, 1-877-325-1840.
For product and use information, Nufarm Agriculture Inc.,
1-800-868-5444.

2. Hazard Identification

Classified according to UN GHS Version 5.

Physical Hazards:

None

Health Hazards:

Acute toxicity (Oral) Category 4

Acute toxicity (Inhalation) Category 4

Acute toxicity (Dermal) Category 5

Environmental Hazards:

Hazardous to aquatic environment, acute Category 1

Signal Word:

WARNING

Hazard Statements:

Harmful if swallowed. Harmful if inhaled. May be harmful in contact with skin. Very toxic to aquatic life.



Nufarm MCPA Ester 600 Liquid Herbicide

Safety Data Sheet

Issue Date: 2017-12-21

Supersedes Date: 2017-05-17

{Reserved}

Precautionary Statements:

May be harmful in contact with skin. Avoid contact with skin, eyes and clothing. After use, wash hands and other exposed skin. Wear a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. Remove and wash contaminated clothing before reuse.

Harmful if swallowed. Do not eat, drink or smoke when using this product.

Avoid breathing spray mist. Use only outdoors or in a well-ventilated area.

This product contains an active ingredient and petroleum distillates which are toxic to aquatic organisms.

3. Composition / Information on Ingredients

Hazardous Components	CAS No.	Wt. %
MCPA 2-ethylhexyl ester	29450-45-1	89-94
Chemical Synonyms: MCPA 2EH; 2-ethylhexyl 2-(4-chloro-2-methylphenoxy)acetate; 2-ethylhexyl (4-chloro-2-methylphenoxy)acetate		
Distillate petroleum, hydro treated light	64742-47-8	1-3

Other ingredients are considered non-hazardous.

Content as Expressed on Product Label

MCPA, present as 2-ethylhexyl ester ... 600 g a.e./L

4. First Aid Measures

If swallowed, call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you, when seeking medical attention.

DO NOT induce vomiting. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. No specific antidote. Employ supportive care. High concentrations of MCPA may cause severe irritation to the eyes. Symptoms of overexposure to MCPA could

Nufarm MCPA Ester 600 Liquid Herbicide Safety Data Sheet

Issue Date: 2017-12-21

Supersedes Date: 2017-05-17

{Reserved}

include slurred speech, twitching, jerking and spasms, drooling, low-blood pressure and unconsciousness. Treat symptomatically.

5. Fire-fighting Measures

Extinguishing Media: Water fog, alcohol foam, carbon dioxide, dry chemical.

Special Firefighting Procedures: Firefighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Minimize and contain water runoff.

Flash Point:..... >100 C

Conditions of Flammability: Not classed as a combustible liquid, but may burn under fire conditions.

Hazardous Decomposition Products:... Under fire conditions, may produce gases such as hydrogen chloride, nitrogen oxides and carbon oxides.

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 2 Flammability: 1 Reactivity: 0

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

6. Accidental Release Measures

Use safety equipment and procedures appropriate to the size of the spill. Keep unnecessary people away. Avoid runoff to natural waters and sewers. Surround and absorb spills with inert material such as perlite, sawdust, clay granules, vermiculite, sand or dirt. Contain all affected material in a closed, labeled container for proper disposal. Isolate from other waste materials. Clean contaminated area such as hard surfaces with detergent and water, collecting cleaning solution for proper disposal. Large spills to soil or similar surfaces may necessitate removal of top soil.

7. Handling and Storage

Handling: Avoid contact with skin, eyes and clothing. After use, wash hands and other exposed skin. Wear a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. Remove and wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product.

Storage: Store the container tightly closed away from seeds, fertilizer, plants and foodstuffs. May be stored at any temperature. Shake well before using.

8. Exposure Controls / Personal Protection

Engineering Controls: Use only outdoors or in a well-ventilated area.

Personal Protective Equipment: Long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal.

Exposure Guidelines:

Component	TWA*	STEL**	Reference/Note
MCPA 2-ethylhexyl ester	N/E	N/E	None found

Nufarm MCPA Ester 600 Liquid Herbicide Safety Data Sheet

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Supersedes Date: 2017-05-17

{Reserved}

Distillate petroleum, hydro treated light	1200 mg/m ³	N/E	Manufacturers recommendation, total hydrocarbon
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*Time-weighted Average, 8-hour unless otherwise noted.

**Short Term Exposure Limit

NE = Not Established

Refer to approved product label for additional exposure control guidance.

9. Physical and Chemical Properties

NOTE: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

Appearance (physical state, colour, etc.) clear amber liquid
Odour hydrocarbon-like, phenolic
Odour threshold not available
pH 4.3 (1% w/w dilution)
Melting point / Freezing point <-25C (MCPA 2EH)
Initial boiling point and boiling range >220C (MCPA 2EH)
Flash point >100C
Evaporation rate not available
Flammability (solids, gases) not applicable
Upper / Lower flammability or explosive limits ... not available
Vapour pressure 5.7 x 10⁻³ mm Hg @ 25C (MCPA 2EH)
Vapour density not available
Relative density 1.064
Solubility(ies) product is emulsifiable in water
Partition coefficient: n-octanol/water product is oil soluble
Autoignition temperature not available
Decomposition temperature >220C (MCPA 2EH)
Viscosity 58.4 cP @ 20C

10. Stability and Reactivity

Reactivity: Not reactive.

Chemical Stability: Stable under normal handling and storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Excessive heat. Do not store near heat or flame.

Incompatible Materials: Avoid contact with strong acidic, basic or oxidizing agents.

Hazardous Decomposition Products: Under fire conditions, may produce gases such as hydrogen chloride, nitrogen oxides and carbon oxides.

11. Toxicological Information

Nufarm MCPA Ester 600 Liquid Herbicide Safety Data Sheet

Issue Date: 2017-12-21

Supersedes Date: 2017-05-17

{Reserved}

Likely routes of exposure: Inhalation, ingestion, skin and eye contact.

Eye contact: May cause eye irritation, generally of minimal degree. Causes redness and tearing.

Skin contact: May be harmful if absorbed through skin. May cause skin irritation, generally of minimal degree.

Ingestion: Harmful if swallowed. May cause dizziness, temporary loss of muscle coordination, nausea, vomiting, abdominal pain, decreased blood pressure, fatigue, muscle weakness, muscle spasms.

Inhalation: Harmful if inhaled. Vapours could cause coughing, burning, headache, dizziness, respiratory irritation and symptoms similar to those from ingestion.

Medical Conditions Aggravated by Exposure: Skin exposure may aggravate preexisting skin conditions. Inhalation of mist may aggravate preexisting respiratory conditions.

Toxicological Data:

Acute oral LD₅₀ (mg/kg) 1046 (Rat, combined male & female)

Acute dermal LD₅₀ (mg/kg) >2000 (Rat, male & female)

Acute inhalation LC₅₀ (mg/l) >2.64 (Rat, male & female, 4-hour, nose-only exposure)

Skin corrosion/irritation Slightly irritating to skin (Rabbit)

Serious eye damage/irritation Mildly irritating to the eye (Rabbit)

Respiratory or skin sensitization ... Not considered as a contact dermal sensitizer (Guinea pig)

Germ cell mutagenicity There have been some positive and some negative studies, but the weight of evidence is that MCPA is not mutagenic. Products similar to the hydrocarbon component are not considered to be mutagenic.

Carcinogenicity The International Agency for Research on Cancer (IARC) lists exposure to chlorophenoxy herbicides as possibly carcinogenic to humans (Group 2B), the category for limited evidence for carcinogenicity in humans. MCPA was not carcinogenic to rats or mice in lifetime feeding studies. Products similar to the hydrocarbon component are not considered to be mutagenic and are unlikely to cause tumors.

Reproductive toxicity Animal reproduction studies with MCPA indicate there is no increased sensitivity of the young relative to maternal animals.

12. Ecological Information

Ecotoxicity:

Data are from laboratory studies conducted on MCPA-2-ethylhexyl technical.

Aquatic Invertebrate: 48-Hour EC₅₀ (mg/L) 0.28 (*Daphnia*)

Fish: 96-Hour LC₅₀ (mg/L) 3.2 (Rainbow Trout), > 3.2 (Bluegill Sunfish)

Algae: 120-Hour EC₅₀ (mg ae/L) 0.25 (*Selenastrum*), 1.2 (*Navicula*), 0.085 (*Skeletonema*)

Birds: Oral LD₅₀ (mg ae/kg) >2250 (Bobwhite); Dietary LDD₅₀ > 3800 (Bobwhite), > 930 (Mallard) (mg ae/kg bw/d)

Bees: Oral LD₅₀ > 250 µg 500 g/L MCPA 2EH formulation/bee

Bees: Contact LD₅₀ > 210 µg 500 g/L MCPA 2EH formulation/bee

Persistence and Degradability: MCPA 2EH rapidly hydrolyzes to parent MCPA acid. MCPA is microbially degraded with typical half-life (ester and acid) of 5 to 20 days. Persistent in anaerobic environments.

Nufarm MCPA Ester 600 Liquid Herbicide Safety Data Sheet

Issue Date: 2017-12-21

Supersedes Date: 2017-05-17

{Reserved}

Mobility in Soil: Moderate to high mobility potential, but rapidly degraded.

Bioaccumulation Potential: Negligible.

13. Disposal Considerations

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Disposal should be made in accordance with federal, provincial and local regulations.

Do not reuse container for any purpose. If applicable, return container in accordance with return program. If a recyclable container, dispose of at a container collection site. Contact local distributor, dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site, triple or pressure rinse the empty container adding rinsings to spray tank, and make container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

14. Transport Information

Canadian TDG Description (Road & Rail):

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (MCPA Ester), Class 9, PG III, Marine pollutant.

Section 1.45.1 of the TDG Regulations provides an exemption from documentation and safety marks only for this product and only when transported by a road or railway vehicle.

United States

DOT:

< 119 gallons per complete package

Non Regulated

≥ 119 gallons per complete package

UN 3082, Environmentally hazardous substance, liquid, n.o.s. (MCPA Ester), 9, III, Marine Pollutant

15. Regulatory Information

Pest Control Products Act Registration Number: 27803

OPAC Schedule: 3

Read the approved label, authorized under the *Pest Control Products Act*, prior to using or handling the pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the *Pest Control Products Act*. These requirements differ from the classification criteria and hazard information

Nufarm MCPA Ester 600 Liquid Herbicide Safety Data Sheet

Issue Date: 2017-12-21

Supersedes Date: 2017-05-17

{Reserved}

required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control product label:



WARNING

POISON

WHMIS exempt.

16. Other Information

This Safety Data Sheet (SDS) is designed to comply with the Globally Harmonized System (GHS) of classification, and the *Hazardous Products Regulations*.

This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use. The product labeling provides that information specifically for product use as intended.

Company and published information is used in the development of this SDS. The information herein is presented in good faith and believed accurate at the date of publication. However, no warranty, expressed or implied, is given.

Revisions to the last issue: Addition of PMRA guidance info to Section 15.

Issue Date: 2017-12-21

Supersedes Date: 2017-05-17

2015-0158
2015-02-10

Container label

GROUP	2	HERBICIDE
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ADAMA

Phantom 240 SL

Herbicide Solution

COMMERCIAL (AGRICULTURAL)

GUARANTEE: Imazethapyr 240 g/L

REGISTRATION NO. 30017
PEST CONTROL PRODUCTS ACT

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

KEEP OUT OF REACH OF CHILDREN

NET CONTENTS: 1-1050 Litres

For emergency medical help and health/safety inquiries call ProPharma at 1-877-250-9291 (24 hours a day)

For spill, leak or fire call INFOTRAC at 1-800-535-5053 (24 hours a day)

ADAMA Agricultural Solutions Canada Ltd.

300 – 191 Lombard Avenue
Winnipeg, Manitoba
R3B 0X1
1-855-264-6262

PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN.
- This product may be harmful if swallowed, inhaled or absorbed through the skin.
- Do not contaminate food or feed products.
- Avoid contact with eyes, skin and clothing.
- Avoid breathing vapour or spray mist. Use with adequate ventilation.
- May cause eye damage. May cause skin irritation.
- Wear dust and/or splash-proof goggles or face shield and chemically resistant gloves when mixing, loading and during application, clean-up and repair.
- Wear long-sleeved shirt and long-legged pants when handling.
- Do not eat, drink or smoke when using.
- Wash hands and face before eating, drinking, smoking and using the toilet.
- Wash thoroughly with soap and water after handling.
- Take a shower IMMEDIATELY after work.
- Store and wash all protective clothing separately from normal laundry.
- Clean protective equipment (gloves, goggles, face shield) upon removal with soapy water.
- Clean spray equipment thoroughly after use. Wash in detergent and hot water before reuse.
- Wear freshly laundered clothes daily.
- DO NOT APPLY BY AIR.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store the leftover product in original tightly closed container.
2. Keep product from freezing. DO NOT store below 0°C. If the product is exposed to temperatures below 0°C during shipment or storage, make sure the product has thawed completely, and shake the container vigorously.
3. DO NOT ship or store the product near food, feed, seed and fertilizers.
4. Store the product in cool, dry, locked, well-ventilated areas without floor drain.

DISPOSAL

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

Booklet label

GROUP	2	HERBICIDE
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MANA

Phantom 240 SL

Herbicide Solution

COMMERCIAL (AGRICULTURAL)

GUARANTEE: Imazethapyr 240 g/L

REGISTRATION NO. 30017
PEST CONTROL PRODUCTS ACT

READ THE LABEL AND THIS BROCHURE BEFORE USING KEEP OUT OF REACH OF
CHILDREN

NET CONTENTS: 1-1050 Litres

**For emergency medical help and health/safety inquiries call ProPharma at 1-877-
250-9291 (24 hours a day)**

For spill, leak or fire call INFOTRAC at 1-800-535-5053 (24 hours a day)

ADAMA Agricultural Solutions Canada Ltd.

300 – 191 Lombard Avenue

Winnipeg, Manitoba

R3B 0X1

1-855-264-6262

DIRECTIONS FOR USE

GENERAL INFORMATION

Phantom 240 SL is a selective herbicide that can be applied as an early pre-plant, pre-plant incorporated, pre-emergent or post-emergent treatment in various crops. The application method depends upon the crop, anticipated weed spectrum and the preference of the applicator. With early pre-plant and pre-emergent treatments, susceptible weeds emerge, are present as stunted plants and then die. When Phantom 240 SL is applied post-emergence, absorption may occur through both the roots and foliage. Susceptible weeds stop growing and eventually die.

Eastern Canada Directions:

Use Phantom 240 SL at 312 mL (75 g active) – 420 mL (100 g active) in 400 L of water per hectare. See appropriate rate tables for specific application rates for each crop.

NOTE: A NONIONIC SURFACTANT CONTAINING AT LEAST 80% ACTIVE INGREDIENT (e.g. AGRAL® 90, AG-SURF®) at the rate of 0.25% (v/v) MUST BE ADDED to the spray solution (2.5 L of surfactant per 1000 L of spray solution).

REGISTERED CROPS

Adzuki Beans

Alfalfa Grown for Seed Production

Dry Common Beans (black, Dutch brown, kidney, white, yellow eye and cranberry beans only)

Lima Beans (Ontario only)

Processing Peas

Snap Beans

Snow Peas

Soybeans

MOISTURE REQUIREMENTS

As with most soil-applied herbicides, pre-emergent applications of Phantom 240 SL require moisture for activation. Soil-applied Phantom 240 SL requires sufficient water within 7 days of application to moisten the soil to a depth of 5 cm for activation. If adequate moisture is not received within 7 to 10 days of application, perform a shallow inter-row cultivation 5-8 cm deep using a roller or S-tine cultivator to control escaped weeds until the field receives adequate moisture. For early pre-plant applications (soybeans only), more than 7-10 days may elapse before the receipt of adequate precipitation to activate the herbicide and reduce the risk of weed escapes. Growers preferring surface applications of herbicides may choose this type of application of Phantom 240 SL.

PLANT BACK RESTRICTIONS AND ROTATIONAL CROPS

In cases of crop failure, replant only soybeans, kidney beans, cranberry beans, Dutch brown beans, black beans, yellow eye beans, white beans, lima beans, adzuki beans and processing peas in the year of application. Winter wheat may also be re-planted in cases of crop failure or as a rotational crop 100 days following a Phantom 240 SL application. Soil preparation for re-planting should be no deeper than 10 cm.

Field corn, soybeans, winter wheat, spring wheat, spring barley, kidney beans, cranberry beans, Dutch brown beans, black beans, yellow eye beans, white beans, lima beans, adzuki beans and processing peas may be planted the season following a Phantom 240 SL application. Conduct a field bioassay (a test strip grown to maturity) the year BEFORE growing any other crop.

APPLICATION INSTRUCTIONS

CROP: SOYBEANS

Apply Phantom 240 SL as an early pre-plant, pre-plant incorporated, pre-emergent or post-emergent treatment in soybeans.

For fields that contain weeds other than those listed in the “Weed Control in Soybeans: Phantom 240 SL Alone” table, tank mix for broad-spectrum weed control (see “Herbicide Tank Mix Options – Soybeans”). The choice of product for tank mixing will depend on the specific weed(s) to be controlled. Consult the labels of the tank mix products to determine which product will provide control of the specific weeds present in the field.

Weed Control in Soybeans: Phantom 240 SL Alone

Weeds	Application Timing					
	Early Preplant (prior to weed emergence)	Early Pre-plant (emerged weeds prior to 2 leaf stage)	Pre-plant Incorporated	Pre-Emergent	Early Post-emergent (before weeds reach 2 leaf stage)	Postemergent (maximum leaf stage)
Broadleaf weeds						
Lamb’s quarters	C	PC	C ²	C	PC	
Redroot pigweed	C	C C C C C(1 2)				
Smartweed	C		C			
Lady’s thumb	C		C	³		
Wild mustard	C	C C C C				
Velvetleaf	C ₁	C ₁	C ₁	C ₁	C ¹	C(8)
Ragweed, common		PC	²	C ₃		

Weeds	Application Timing					
	Early Preplant (prior to weed emergence)	Early Pre-plant (emerged weeds prior to 2 leaf stage)	Pre-plant Incorporated	Pre- Emergent	Early Post- emergent (before weeds reach 2 leaf stage)	Postemergent (maximum leaf stage)
Ragweed		PC		C	⁴	
Eastern black nightshade	PC	C	C C C			
Wild buckwheat		PC		C		
Cocklebur		C ₁			C ^{1,4}	
Grasses						
Foxtail, green and yellow	C	C C C C C(4)				
Barnyard grass	C	PC	PC ²	C ₃	C ⁴	C(6)
Old witchgrass	C		C	³	C	
Proso millet	PC	PC PC PC P	C			
Crabgrass, large		PC				
Perennials						
Yellow nutsedge		PC				

C = Control PC = Partial Control and Reduces Competition

1. Some plants of velvetleaf and/or cocklebur that germinate deeper in the soil and emerge late may escape treatment.
2. Tank mixing is recommended for fields with a history of heavy infestations of this weed species.
3. The higher label rate or tank mixing is recommended for fields with a history of heavy infestations of this weed species.
4. The higher label rate is required for heavy infestations of this weed species.

Herbicide Tank Mix Options - Soybeans

Tank Mix Option	Application Timing			
	Early Preplant	Pre-plant Incorporated	Pre- Emergent	Postemergent
Gramoxone®	X ₁			
Roundup® ⁴ or Glyphos®	X ₁			X _{1, 3}
Roundup + FirstRate®	X ₂			
Sencor®/Lexone®		X _{1,2}	X ₁	

Tank Mix Option	Application Timing			
	Early Preplant	Pre-plant Incorporated	Pre-Emergent	Postemergent
Treflan®/Rival®/Trifluralin® or Edge		X ₁		
Lorox®/Afolan®/Linuron®			X ₁	
Basagran®			X	^{1,2}
Basagran® Forte			X	^{1,2}

1. Refer to the label of the specific tank mix product for information regarding: rates, recommendations, precautions and restrictions.
2. Refer to Tank Mix Options under the appropriate Application Timing in this label.
3. Glyphosate Tolerant Soybeans only (i.e., varieties with the Roundup Ready®). Refer to CROP: GLYPHOSATE TOLERANT gene SOYBEANS section.
4. Roundup Original Liquid Herbicide, Roundup Transorb™ Liquid Herbicide or Roundup WeatherMax™ with Transorb 2 Technology Liquid Herbicide.

Timing	Early Pre-plant Application - Soybeans Apply Phantom 240 SL up to 30 days before planting in conventional, reduced tillage or no-till soybeans. Phantom 240 SL alone may be applied as a surface application using this technique. Only one additional working of the soil to prepare the seedbed is recommended following the application. This final seedbed preparation should not work the soil deeper than 10 cm. Deeper tillage will result in reduced concentration of herbicide in the weed germination zone and reduction in weed control. DO NOT plow following the application.	
Rate	Early Pre-plant – Prior to Weed Emergence	420 mL/ha
	Early Pre-plant – to Emerged Weeds (before the weeds reach the 2 true leaf stage).	420 mL/ha + non-ionic surfactant. Nonionic surfactant MUST BE ADDED. Liquid fertilizer added to the spray solution will provide quicker burndown of weed
Water Volume	100-400 L/ha	
Surfactant/ Adjuvant	For Early Pre-plant – to Emerged Weeds: Non-ionic surfactant – 0.25% v/v (e.g. 2.5 L/1000 L of spray solution) Liquid fertilizer solution - 2 L/ha	
Weeds Controlled	See “Weed Control in Soybeans” table above.	
Remark	Plant only soybeans during the season of application.	

Tank Mix Options	<p>Phantom 240 SL may also be tank mixed with the herbicides listed in the “Herbicide Tank Mix Options – Soybeans” table. Always follow the most conservative rates, recommendations, precautions and restrictions on the tank mix labels.</p> <p>For the combined tank mix with ROUNDUP and FIRSTRATE, use the following:</p> <table border="1"> <tr> <td>Rates</td> <td> Phantom 240 SL – 312 mL/ha ROUNDUP – 2.5 L/ha (0.900 kg ai/ha) FIRSTRATE – 21 g/ha (0.0175 kg ai/ha) </td> </tr> <tr> <td>Water Volume</td> <td>100-400 L/ha</td> </tr> </table> <p>Comments: This tank mix provides control of emerged weeds found on the ROUNDUP herbicide label and residual control of germinating weeds found on the Phantom 240 SL and FIRSTRATE herbicide labels. Temporary crop injury may occur, however, yield will not normally be affected. Avoid sprayer overlap. Severe crop injury will occur.</p>	Rates	Phantom 240 SL – 312 mL/ha ROUNDUP – 2.5 L/ha (0.900 kg ai/ha) FIRSTRATE – 21 g/ha (0.0175 kg ai/ha)	Water Volume	100-400 L/ha							
Rates	Phantom 240 SL – 312 mL/ha ROUNDUP – 2.5 L/ha (0.900 kg ai/ha) FIRSTRATE – 21 g/ha (0.0175 kg ai/ha)											
Water Volume	100-400 L/ha											
Timing	<p>Pre-plant Incorporated Application - Soybeans</p> <p>Incorporate Phantom 240 SL evenly throughout the top 5 cm of the soil profile. Incorporation may be achieved with a double pass using discs or cultivator operated at 8 to 12 kph with the second pass at an angle to the first. Cultivators must have 3 or 4 rows of flexible sweeps staggered and spaced less than 15 cm apart followed by a drag or rolling basket to ensure no soil is left unturned.</p>											
Rate	312 mL/ha											
Water Volume	100-400 L/ha											
Weeds Controlled	See “Weed Control in Soybeans” table above.											
Remark	DO NOT apply Phantom 240 SL as a pre-plant incorporated application more than one year in sequence. Allow at least 24 months between pre-plant incorporated applications.											
Tank Mix Options	<p>For fields that contain heavy lamb's-quarters, common ragweed and/or barnyard grass infestations or weeds other than those listed under “Phantom 240 SL Alone”, tank mixing may be required to provide broad-spectrum weed control (see “Herbicide Tank Mix Options – Soybeans” table). Follow the most conservative rates, recommendations, precautions and restrictions on the tank mix labels. For SENCOR and LEXONE herbicide, refer to the following table for rates:</p> <table border="1"> <thead> <tr> <th rowspan="2">Soil Texture¹</th> <th colspan="2">Application Rate (g/ha)</th> </tr> <tr> <th>SENCOR 75DF</th> <th>LEXONE 75 DF</th> </tr> </thead> <tbody> <tr> <td>Medium (loam, silt loam, silt, sandy clay, sandy clay loam)</td> <td>750</td> <td>540</td> </tr> <tr> <td>Heavy (silty clay, silty clay loam, clay and clay loam)</td> <td>750</td> <td>640</td> </tr> </tbody> </table> <p>¹ Do not use on light (loamy sand, sandy loam) textured soils. Do not use on soil with less than 2% organic matter.</p>	Soil Texture ¹	Application Rate (g/ha)		SENCOR 75DF	LEXONE 75 DF	Medium (loam, silt loam, silt, sandy clay, sandy clay loam)	750	540	Heavy (silty clay, silty clay loam, clay and clay loam)	750	640
Soil Texture ¹	Application Rate (g/ha)											
	SENCOR 75DF	LEXONE 75 DF										
Medium (loam, silt loam, silt, sandy clay, sandy clay loam)	750	540										
Heavy (silty clay, silty clay loam, clay and clay loam)	750	640										
Timing	<p>Pre-emergent Application - Soybeans</p> <p>Pre-emergent applications of Phantom 240 SL may be applied before the crop and weeds emerge.</p>											

Rate	312 - 420 mL/ha	
Water Volume	100-400 L/ha	
Weeds Controlled	See “Weed Control in Soybeans” table above.	
Tank Mix Options	For fields that contain heavy infestations of common ragweed, old witchgrass, barnyard grass, lady’s-thumb or weeds other than those listed under “Phantom 240 SL Alone”, tank mixing may be required to provide broad-spectrum weed control (see “Herbicide Tank Mix Options – Soybeans” table). Follow the most conservative rates, recommendations, precautions and restrictions on the tank mix labels.	
Timing	<p>Early and Late Post-emergent Application - Soybeans</p> <p>Apply Phantom 240 SL early post-emergent after the crop has emerged and before the weeds reach the 2 true leaf stage.</p> <p>Phantom 240 SL may also be applied late post-emergent after the crop has emerged for control of certain weed species up to the growth stages indicated in the “Weed Control in Soybeans: Phantom 240 SL Alone” table. To minimize weed competition with the crop, application should be made as early as possible after weed emergence.</p>	
Rate	Early Post-emergent – (before the weeds reach the 2 true leaf stage)	312-420 mL/ha + non-ionic surfactant + liquid fertilizer
	Late Post-emergent	420 mL/ha + non-ionic surfactant + liquid Fertilizer.
Water Volume	100-400 L/ha	
Surfactant/ Adjuvant	Non-ionic surfactant – 0.25% v/v (e.g. 2.5 L/1000 L of spray solution) Liquid fertilizer solution (10-34-0, 28-0-0 or 32-0-0) - 2 L/ha	
Weeds Controlled	See “Weed Control in Soybeans” table above.	
Remark	<p>Addition to the spray solution of a non-ionic surfactant plus liquid fertilizer is essential for post-emergent application, improving uptake of the product by weeds resulting in improved herbicidal activity.</p> <p>Avoid applications when weeds and/or crop are under growth stress. Stunting of the crop may result following post-emergence application. This condition is the result of stem inter-node shortening but will not result in yield reduction.</p>	
Tank Mix Options	<p>Phantom 240 SL may also be tank mixed with the herbicides listed in the “Herbicide Tank Mix Options – Soybeans” table. Always follow the most conservative rates, recommendations, precautions and restrictions on the tank mix labels.</p> <p>Comments:</p> <p>Use the 312 mL/ha rate of Phantom 240 SL when tank mixed with Basagran or Basagran Forte herbicide.</p> <p>For Phantom 240 SL plus BASAGRAN herbicide, a non-ionic surfactant at the rate of 0.25% (v/v) and fertilizer solution at the rate of 2 L/ha MUST BE ADDED to the spray solution.</p> <p>For Phantom 240 SL plus BASAGRAN FORTE herbicide, only fertilizer solution MUST BE ADDED at the rate of 2 L/ha.</p>	

CROP: GLYPHOSATE TOLERANT SOYBEANS (i.e., varieties with the Roundup Ready® gene)

Timing	Post-emergent Application For broadleaf and grass weeds other than those listed in “Weed Control in Soybeans: Phantom 240 SL Alone” table, Phantom 240 SL may be tank mixed with ROUNDUP herbicide and applied to Roundup Ready soybeans. Follow the rates, application timings, recommendations, precautions and restrictions on the ROUNDUP herbicide label. Refer to the ROUNDUP herbicide label for adjuvant recommendations.
Rate	312 mL/ha
Water Volume	100-400 L/ha
Remarks	WARNING Apply Phantom 240 SL + ROUNDUP herbicide tank mix ONLY to glyphosate tolerant soybeans, i.e. varieties with the Roundup Ready® gene. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

CROP: EDIBLE BEANS (including kidney beans, cranberry beans, Dutch brown beans, black beans, lima beans (Ontario only), yellow eye beans, white beans and adzuki beans)

Apply Phantom 240 SL as a pre-emergent treatment in kidney beans, cranberry beans, Dutch brown beans, black beans, yellow eye beans, white beans, adzuki beans and lima beans (Ontario only), and as a pre-plant incorporated treatment in white beans, kidney beans, cranberry beans and adzuki beans.

Weed Control in Edible Beans: Phantom 240 SL Alone

Weeds	Application Timing	
	Pre-Emergent	Pre-plant Incorporated (kidney beans, cranberry beans, white beans and adzuki beans only)
Broadleaf weeds		
Lamb’s quarters	C	C
Redroot pigweed	C	C
Smartweed	C	C
Lady’s thumb	C	C
Wild mustard	C	C
Velvetleaf	C ₁	C ¹
Ragweed, common	PC	PC
Eastern black nightshade	C	C

Weeds	Application Timing	
	Pre-Emergent	Pre-plant Incorporated (kidney beans, cranberry beans, white beans and adzuki beans only)
Grasses		
Foxtail, green and yellow	C	C
Proso millet	PC	PC

C = Control PC = Partial Control and Reduced Competition

1 Some plants of velvetleaf that germinate deeper in the soil and emerge late may escape treatment.

Timing	Pre-emergent Application – Edible Beans
Rate	312 mL/ha
Water Volume	100-400 L/ha
Tanks Mix Options	For fields that contain heavy infestations of broadleaf weeds other than those listed under “Phantom 240 SL Alone”, tank mixing may be required to provide broad-spectrum weed control. Cranberry and Kidney Beans Tank mix Phantom 240 SL with 1.15 – 1.75 L/ha (1.05-1.60 kg ai/ha) of DUAL® MAGNUM herbicide to control labelled broadleaf weeds and grasses in cranberry beans and kidney beans. Refer to the DUAL MAGNUM herbicide label for additional recommendations, precautions and restrictions not specified on this label.
Timing	Pre-plant Incorporated Application (kidney beans, cranberry beans, white beans; adzuki beans in Eastern Canada only)
Rate	312 mL/ha
Water Volume	100-400 L/ha
Tanks Mix Options	White Beans Tank mix Phantom 240 SL with 1.25-2.4 L/ha of TREFLAN® herbicide to control a broader spectrum of weeds in white beans only. Follow recommendations, precautions and restrictions on the TREFLAN herbicide label. Consult the tank mix partner label for weeds controlled other than those listed for Phantom 240 SL alone. Cranberry and Kidney Beans Tank mix Phantom 240 SL with 1.15 – 1.75 L/ha (1.05-1.60 kg ai/ha) of DUAL MAGNUM herbicide to control labelled broadleaf weeds and grasses in cranberry beans and kidney beans. Refer to the DUAL MAGNUM herbicide label for additional recommendations, precautions and restrictions not specified on this label.

CROP: PROCESSING PEAS

Timing	Pre-emergent or Pre-plant Incorporated Application
Rate	312 mL/ha
Water Volume	200 L/ha
Weeds Controlled	See “Phantom 240 SL Alone: Weed Control in Soybeans”

CROP: SNOW PEAS

Timing	Pre-emergent or Pre-plant Incorporated Application
Rate	312 mL/ha
Water Volume	100-400 L/ha
Weeds Controlled	See “Phantom 240 SL Alone: Weed Control in Soybeans”

CROP: SNAP BEANS

Timing	Pre-emergent or Pre-plant Incorporated Application
Rate	312 mL/ha
Water Volume	200 L/ha
Weeds Controlled	See “Phantom 240 SL Alone: Weed Control in Soybeans”

CROP: ALFALFA GROWN FOR SEED PRODUCTION

Timing	Pre-emergent or Pre-plant Incorporated Application
Rate	312-420 mL/ha
Water Volume	200 L/ha
Surfactant/ Adjuvant	A non-ionic surfactant at the rate of 0.25% (v/v) MUST BE ADDED to the spray solution (e.g., 2.5 L of surfactant per 1000 L of spray solution). Fertilizer Solutions MUST BE ADDED to the spray solution at the rate of 2 L/ha to provide quicker burndown of weeds.
Weeds Controlled	See “Phantom 240 SL Alone: Weed Control in Soybeans”

MIXING INSTRUCTIONS

1. Ensure the spray tank is clean before use. Follow the clean-out recommendations stated on the label of the product that was previously used.
2. Fill the spray tank one-half full to three-quarters full of water and start agitation.
3. Using a calibrated measuring device, add the required amount of tank mix partner (refer to the tank mixture section of each crop for tank mixtures).
4. Mix thoroughly.
5. Using a separate calibrated measuring device, add the required amount of Phantom 240 SL to the tank while agitating the spray solution.
6. While the solution remains agitating, add the required amount of non-ionic surfactant if required.

7. If required, add the required amount of liquid fertilizer (28-0-0, 10-34-0 or 32-0-0) to the spray solution.
8. Continue agitation while filling the remainder of the spray tank with water.
9. Clean the spray tank after use.

ENVIRONMENTAL PRECAUTIONS

Phantom 240 SL is toxic to aquatic organisms.

DO NOT apply this product directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches, and wetlands), estuaries, or marine habitats. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

RESTRICTIONS AND LIMITATIONS

1. DO NOT APPLY PHANTOM 240 SL BY AIR. APPLY WITH GROUND EQUIPMENT ONLY.
2. DO NOT over apply Phantom 240 SL. Over application may result in injury particularly if the crop is under stress.
3. Crop Pre-harvest Interval

Crop	Application to Harvest Interval (days)
Soybeans	100
Dry Beans ¹	100
Lima Beans	90
Processing Peas	50
Snow Peas	60
Snap Beans	40

¹ kidney, adzuki, Dutch brown, black, yellow eye, white and cranberry beans

4. CAUTION: Do not graze treated crops or cut for hay, sufficient data are not available to support such use.
5. DO NOT let spray drift contaminate crops in adjacent fields.
6. ONLY ONE (1) application of Phantom 240 SL may be made during the season.
7. DO NOT apply Phantom 240 SL as a pre-plant incorporated application in all crops more than one year in sequence. Allow at least 24 months between pre-plant incorporated applications.
8. Emerged weeds in pre-emergent applications which reach the 2 - 3 true leaf stage might be considered as escapes. Shallow cultivation or application of a post-emergent herbicide is recommended. DO NOT cultivate deeply.
9. DO NOT apply Phantom 240 SL when crop is under stress conditions because crop injury may result.
10. Post-emergent application of Phantom 240 SL to soybeans may cause stunting. This condition is the result of stem inter-node shortening and does not cause yield reductions if

Phantom 240 SL has been used at label rates and following label recommendations.

11. Phantom 240 SL may cause stunting or delayed maturity in white beans and kidney beans. Stunting is the result of stem inter-node shortening and should not cause yield reductions if Phantom 240 SL has been used at label rates and following label recommendations.
12. Over-spray or drift to important wildlife habitats such as shelterbelts, water-bodies, wetlands, woodlots, vegetated ditch-banks, hedgerows and other cover on the edge of fields should be avoided. Leave a 15meter buffer zone between the last spray swath and the edge of any of these habitats.

Western Canada Directions:

DIRECTIONS FOR USE ON FIELD PEAS

Phantom 240 SL is a selective herbicide that can be applied as an early post-emergence treatment in field peas. When Phantom 240 SL is applied early post-emergence, absorption may occur through both the roots and foliage. Susceptible weeds stop growing and eventually die.

SOIL ZONES: Black and grey wooded soils

CROPS: Field peas up until the sixth (6th) trifoliate leaf stage

ROTATIONAL CROPS

There is the possibility of residual soil activity from Phantom 240 SL the year following application. Research studies have shown the following crops can be safely grown in black and grey wooded soil zones the year following a Phantom 240 SL application:

Spring barley, spring wheat, lentils, alfalfa, field peas

Conduct a field bioassay (a test strip grown to maturity) the year BEFORE growing any other crop than those listed above.

RATES

Apply 50 g active (a.e.) in 100 to 400 litres of water per hectare. Equivalent to 210 mL of product per hectare.

NOTE: A NONIONIC SURFACTANT CONTAINING AT LEAST 80% ACTIVE INGREDIENT (e.g. AGRAL® 90, AG-SURF®) at the rate of 0.25% (v/v) MUST BE ADDED to the spray solution (2.5 L of surfactant per 1000 L of spray solution).

BROADLEAF WEED and GRASS CONTROL POST-EMERGENCE APPLICATIONS

Phantom 240 SL, by early post-emergence application up to the 4 true leaf stage of the weeds, will control:

Chickweed	Cleavers
Green foxtail	Hemp-nettle
Redroot pigweed	Shepherd's purse
Stinkweed	Smartweed
Volunteer canola	Wild buckwheat**
Wild mustard	Wild oats*

* For control of wild oats apply Phantom 240 SL between the 2-4 leaf stage of the weed. **
Suppression only

MIXING INSTRUCTIONS

Fill the spray tank one-half to three-quarters full with water. Using a calibrated measuring device, add the required amount of Phantom 240 SL while agitating the spray solution. While the solution remains agitating, add the required amount of non-ionic surfactant. Fill the remainder of the tank with water.

WARNINGS

An interval of 60 days must follow the Phantom 240 SL application before field peas are harvested.

Field peas treated with Phantom 240 SL may be fed to livestock 30 days after application. DO NOT over-apply Phantom 240 SL. Over application may result in injury particularly if the crop is under stress.

DO NOT let spray drift contaminate crops other than those being sprayed.
ONLY ONE (1) application of Phantom 240 SL may be made during the season. DO NOT tank-mix Phantom 240 SL.

In cases of crop failure, only field peas may be re-planted in the year of application.

DO NOT APPLY BY AERIAL APPLICATION - GROUND APPLICATION ONLY.

Over-spray or drift to important wildlife habitats such as shelterbelts, water bodies, wetlands and woodlots, vegetated ditch banks, hedgerows & other cover on the edge of the field should be avoided. Leave a 15meter buffer zone between the last spray swath and the edge of any of these habitats.

ROTATIONAL CROPS

There is the possibility of residual soil activity from Phantom 240 SL the year following application. Research studies have shown the following crops can be safely grown in black and grey wooded soil zones the year following a Phantom 240 SL application:

Spring barley, spring wheat, lentils, alfalfa, and field peas

Conduct a field bioassay (a test strip grown to maturity) the year BEFORE growing any crop other than those listed above.

RATES

Apply 50 grams active (a.e.) in 100 to 400 litres of water per hectare. Equivalent to 210 mL of product per hectare.

NOTE: A NONIONIC SURFACTANT CONTAINING AT LEAST 80% ACTIVE INGREDIENT

(AGRAL 90, AG-SURF) at the rate of 0.25% (v/v) MUST BE ADDED to the spray solution (e.g., 2.5 L of surfactant per 1000 L of spray solution).

BROADLEAF WEED and GRASS CONTROL

EARLY POST-EMERGENCE APPLICATIONS

Phantom 240 SL, by early post-emergence application (up to and including the 4 leaf stage of susceptible weeds) will control:

Broadleaf weeds:	Chickweed	Grasses:	Green foxtail
	Cleavers		Wild oats*
	Redroot pigweed		
	Smartweed Stinkweed		
	Volunteer canola		
	Wild buckwheat**		
	Wild mustard		

*2 - 4 leaf stage ** Suppression only

In addition, Phantom 240 SL provides partial control of and reduces competition from: Volunteer barley, Volunteer wheat

MIXING INSTRUCTIONS

Fill the spray tank one-half to three-quarters full with water. Using a calibrated measuring device, add the required amount of Phantom 240 SL while agitating the spray solution. While the solution remains agitating, add the required amount of non-ionic surfactant. Fill the remainder of the tank with water.

WARNINGS

CAUTION: Do not graze the treated crop or cut for hay, sufficient data are not available to support such use.

DO NOT over-apply Phantom 240 SL. Over application may result in injury, particularly if crop is under stress.

ONLY one (1) application of Phantom 240 SL may be made during the season.

DO NOT let spray drift contaminate crops other than those being sprayed.

DO NOT tank-mix Phantom 240 SL. An interval of 70 days should follow the last Phantom 240 SL application before canola harvest.

In cases of crop failure, only field peas or imazethapyr and imazamox tolerant canola (e.g. canola varieties with the CLEARFIELD trait) may be re-planted in the year of application.

Over-spray or drift to important wildlife habitats such as shelterbelts, water bodies, wetlands and woodlots should be avoided. Leave a 15-meter buffer zone between the last spray swath and the edge of any of these habitats.

DO NOT APPLY BY AERIAL APPLICATION - GROUND EQUIPMENT ONLY.

DIRECTIONS FOR USE ON NEWLY SEEDED PURE STAND ALFALFA FOR FORAGE OR SEED PRODUCTION

Phantom 240 SL is a selective herbicide that can be applied as an early post-emergence treatment in newly seeded pure stand alfalfa in the year of establishment. Phantom 240 SL may be applied when the crop has developed at least one (1) fully expanded trifoliolate leaf and up to and including the 4 leaf stage of susceptible weeds. Do not spray before all weeds have emerged. When Phantom 240 SL is applied early post-emergence, absorption may occur through both the roots and foliage. Susceptible weeds stop growing and eventually die.

CROPS

Phantom 240 SL may be used on pure stand alfalfa in the year of establishment in the black, grey wooded and irrigated brown soil zones.

USE

Phantom 240 SL is intended for use on pure stand alfalfa in the year of establishment, on stands that will remain for 3 or more years.

ROTATIONAL CROPS

In the event of crop failure, only field peas may be replanted during the same season as the Phantom 240 SL application. Do not apply 2 applications of Phantom 240 SL within the same year.

If necessary, spring wheat, lentils, field peas or alfalfa may be planted the season following a Phantom 240 SL application in the black, grey wooded and irrigated brown soil zones. Barley may also be planted in the black and grey wooded soil zones the season following application. Conduct a field bioassay (a test strip grown to maturity) BEFORE growing any other crop.

RATES

Apply 50 grams active (a.e.) in 100 to 400 litres of water per hectare. Equivalent to 210 mL of product per hectare.

NOTE: For early post-emergence applications a NONIONIC SURFACTANT CONTAINING AT LEAST 80% ACTIVE INGREDIENT (AGRAL 90, AG-SURF) at the rate of 0.25% (v/v) MUST BE ADDED to the spray solution (e.g., 2.5 L of surfactant per 1000 L of spray solution).

BROADLEAF WEED and GRASS CONTROL

EARLY POST-EMERGENCE APPLICATIONS

Phantom 240 SL, by early post-emergence application (up to and including the 4 leaf stage of susceptible weeds) will control: **Broadleaf weeds:** Redroot pigweed, Wild mustard, Stinkweed, Volunteer canola and Green smartweed

In addition, Phantom 240 SL provides partial control of and reduces competition from: Common groundsel Green foxtail Shepherd's purse

MIXING INSTRUCTIONS

Fill the spray tank one-half to three-quarters full with water. Using a calibrated measuring device, add the required amount of Phantom 240 SL while agitating the spray solution. While the solution remains agitating, add the required amount of non-ionic surfactant. Fill the remainder of the tank with water.

WARNINGS

Apply only in the year of establishment and only after the crop has one fully developed trifoliolate leaf.

DO NOT over-apply Phantom 240 SL. Over application may result in injury particularly if the crop is under stress.

DO NOT let spray drift contaminate crops other than those being sprayed.

ONLY ONE (1) application of Phantom 240 SL may be made during the life of the alfalfa stand.

DO NOT tank-mix Phantom 240 SL.

In cases of crop failure, only field peas may be re-planted in the year of application.

DO NOT graze or harvest for forage until 14 days after treatment.

Mature seed from treated plants should not be used for human consumption.

Over-spray or drift to important wildlife habitats such as shelterbelts, water bodies, wetlands, woodlots, vegetated ditch banks, hedgerows and other cover should be avoided. Leave a 15meter buffer zone between the last spray swath and the edge of any of these habitats. DO NOT APPLY BY AERIAL APPLICATION - GROUND EQUIPMENT ONLY.

DIRECTIONS FOR USE ON ESTABLISHED ALFALFA FOR SEED PRODUCTION PURPOSES

CROP	WEEDS CONTROLLED	RATE	DIRECTIONS
Established alfalfa for seed production	Stinkweed, wild mustard, volunteer canola, redroot pigweed and suppression of green foxtail	50 g a.e./ha	One application per year; postemergent; ground application; apply before alfalfa reaches 30 cm. Do not use Phantom 240 SL in the last year of the alfalfa stand.

DIRECTIONS FOR USE ON DRY BEANS (PINTO, PINK, RED)

CROP	PEST	RATE	DIRECTIONS
Dry beans – pinto, pink, red	Hairy nightshade	50 g a.e./ha	One application per year; ground sprayer; apply in 100 - 400 L water/ha; post-emergence; apply up to the 2nd trifoliolate leaf stage of the dry bean; up to 6 leaf stage of hairy nightshade; black, grey wooded and irrigated brown soil zones only; PHI of 75 days.

DIRECTIONS FOR USE ON CHICKLING VETCH (FOR SEED PRODUCTION ONLY)

CROP	PEST	RATE	DIRECTIONS
Chickling vetch/ grass pea	Labelled weeds	50 g a.e./ha	One application per year; post-emergent; ground application; PHI 60 days; apply at the 5-7 leaf stage of chickling vetch/grass pea.

DIRECTIONS FOR USE ON SOYBEANS (MANITOBA ONLY)

CROP	PEST	RATE	DIRECTIONS
Soybeans	Annual grass and broadleaf weeds	50 g a.e./ha plus non-ionic surfactant at 0.25% v/v	Apply as post-emergent application once per season at 1 to 3 leaves of soybean growth; ground application only; PHI 85 days.

RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, Phantom 240 SL is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to Phantom 240 SL and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Phantom 240 SL or other Group 2 herbicides with different herbicide groups that control the same weeds in a field.

- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact ADAMA Agricultural Solutions Canada Ltd. at 1-855-264-6262.

PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN.
- This product may be harmful if swallowed, inhaled or absorbed through the skin.
- Do not contaminate food or feed products.
- Avoid contact with eyes, skin and clothing.
- Avoid breathing vapour or spray mist. Use with adequate ventilation.
- May cause eye damage. May cause skin irritation.
- Wear dust and/or splash-proof goggles or face shield and chemically resistant gloves when mixing, loading and during application, clean-up and repair.
- Wear long-sleeved shirt and long-legged pants when handling.
- Do not eat, drink or smoke when using.
- Wash hands and face before eating, drinking, smoking and using the toilet.
- Wash thoroughly with soap and water after handling.
- Take a shower IMMEDIATELY after work.
- Store and wash all protective clothing separately from normal laundry.
- Clean protective equipment (gloves, goggles, face shield) upon removal with soapy water.
- Clean spray equipment thoroughly after use. Wash in detergent and hot water before reuse.
- Wear freshly laundered clothes daily.
- DO NOT APPLY BY AIR.

STORAGE

1. Store the leftover product in original tightly closed container.
2. Keep product from freezing. DO NOT store below 0°C. If the product is exposed to temperatures below 0°C during shipment or storage, make sure the product has thawed completely, and shake the container vigorously.
3. DO NOT ship or store the product near food, feed, seed and fertilizers.
4. Store the product in cool, dry, locked, well-ventilated areas without floor drain.

DISPOSAL

DO NOT reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.



Safety Data Sheet

Issue Date: 07-Nov-2018

Revision Date: 07-Nov-2018

Version 1

1. IDENTIFICATION

Product identifier

Product Name **Phantom 240 SL**

Other means of identification

SDS # ADAMA-270

Registration Number(s) Pest Control Product Reg. No. 30017
UN/ID No UN3082

Recommended use of the chemical and restrictions on use

Recommended Use Pesticide.

Details of the supplier of the safety data sheet

Manufacturer Address

ADAMA Agricultural Solutions Canada Ltd.
300-191 Lombard Avenue
Winnipeg, Manitoba R3B 0X1
1-855-264-6262

Emergency telephone number

Emergency Telephone For fire, spill and/or leak contact INFOTRAC:
1-800-535-5053 (North America) 1-352-323-3500 (International)
For medical emergencies and health/safety inquiries, contact ProPharma Group:
1-877-250-9291

2. HAZARDS IDENTIFICATION

Emergency Overview This chemical is a product registered by the Canadian Pest Control Products Act and is subject to certain labeling requirements under federal law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-PCPA registered chemicals. Please see Section 15 for additional information. This product has been classified according to Canada's Hazardous Product Regulations (WHMIS 2015).

Appearance green to dark brown liquid

Physical state Liquid

Odor Faint

Classification

Acute toxicity - Inhalation (Dusts/Mists)

Category 4

Signal Word

Warning

Hazard statements

Harmful if inhaled



Precautionary Statements - Prevention

Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a poison center or doctor/physician if you feel unwell

Other hazards

Harmful to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No	Weight-%
Technical Imazethapyr	81335-77-5	22.5
Ammonium hydroxide	1336-21-6	5.16
Stabilizer	Proprietary	15-20
pH adjuster	Proprietary	<1

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures**Eye Contact**

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.
Consult a physician.

Skin Contact

Remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention if irritation persists after washing.

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

Ingestion

Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed**Symptoms**

Harmful if inhaled.

Indication of any immediate medical attention and special treatment needed**Notes to Physician**

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Foam, Dry Chemical, Carbon Dioxide. Water spray (fog).

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

If product is heated above decomposition temperature, toxic vapors will be released. The substances/groups of substances mentioned can be released if the product is involved in a fire.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Wear protective clothing as described in Section 8 of this safety data sheet.

Environmental precautions

Environmental precautions Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment. Protection against fire and explosion: The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials. Further information on storage conditions: Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed. Storage stability: If substance/product crystallizes, thaw at room temperature. Protect from temperatures below: 5 °C Changes in the properties of the product may occur if substance/product is stored below indicated temperature for extended periods of time. Protect from temperatures above: 30 °C Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

Incompatible Materials Oxidizers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
pH adjuster	STEL: 15 ppm TWA: 10 ppm	TWA: 10 ppm TWA: 25 mg/m ³ (vacated) TWA: 10 ppm (vacated) TWA: 25 mg/m ³	IDLH: 50 ppm TWA: 10 ppm TWA: 25 mg/m ³ STEL: 15 ppm STEL: 37 mg/m ³

Appropriate engineering controls

Engineering Controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures, such as personal protective equipment

Eye/Face Protection

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Skin and Body Protection

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards. Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

Respiratory Protection

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapors. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

General Hygiene Considerations

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid	Odor	Faint
Appearance	green to dark brown liquid	Odor Threshold	Not determined
Color	green to dark brown		
<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>	
pH	6.6		
Melting point / freezing point	approximately 0°C		
Boiling point / boiling range	approximately 0°C		
Flash point	>100°C		
Evaporation Rate	Not determined		
Flammability (Solid, Gas)	Not determined		
Flammability Limit in Air			
Upper flammability or explosive limits	Not determined		

Lower flammability or explosive limits	Not determined
Vapor Pressure	23.3
Vapor Density	Not determined
Relative Density	Not determined
Water Solubility	Not determined
Solubility in other solvents	Not determined
Partition Coefficient	Not determined
Autoignition temperature	Not determined
Decomposition temperature	Not determined
Kinematic viscosity	Not determined
Dynamic Viscosity	Not determined
Explosive Properties	Not determined
Oxidizing Properties	Not determined

Other information

Bulk density 1.09-1.12 g/ml

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to Avoid

Keep out of reach of children.

Incompatible materials

Oxidizers.

Hazardous decomposition products

Smoke, fumes or vapors, and oxides of carbon.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure**Product Information**

Eye Contact Avoid contact with eyes.

Skin Contact Avoid contact with skin.

Inhalation Harmful by inhalation.

Ingestion Do not ingest.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Technical Imazethapyr 81335-77-5	> 5 g/kg (Rat)	> 2000 mg/kg (Rabbit)	-
Ammonium hydroxide 1336-21-6	= 350 mg/kg (Rat)	-	-

Stabilizer	= 8471 mg/kg (Rat)	-	-
pH adjuster	= 3310 mg/kg (Rat)	= 1060 mg/kg (Rabbit)	= 11.4 mg/L (Rat) 4 h

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity Based on the information provided, this product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical measures of toxicity

Acute Oral LD50 (Rat): >5,000 mg/kg

Acute Dermal LD50 (Rabbit): >5,000 mg/kg

Acute Inhalation LC50 (Rat): 5.06 mg/L (4-hr)

Eye Irritation: Non-irritating.

Dermal Irritation: Non-irritating.

Dermal Sensitization: Not a skin sensitizer.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life with long lasting effects.

Persistence/Degradability

Not readily biodegradable.

Bioaccumulation

There is no data for this product.

Mobility

Chemical name	Partition coefficient
Stabilizer	-1.59
pH adjuster	-0.31

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes

Canadian manufacturers should dispose of unwanted active ingredients and containers in accordance with municipal or provincial regulations. For additions details and clean up of spills, contact the manufacturer or the provincial regulatory agency.

Contaminated Packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

California Hazardous Waste Status

Chemical name	California Hazardous Waste Status
Ammonium hydroxide 1336-21-6	Toxic Corrosive
pH adjuster	Toxic Corrosive Ignitable

14. TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT

UN/ID No UN3082
 Proper Shipping Name Environmentally hazardous substances, liquid, n.o.s. (IMAZETHAPYR)
 Hazard class 9
 Packing Group III
 Reportable Quantity (RQ) 1000 (Ammonium hydroxide)
 Marine Pollutant Yes.

IATA

UN number UN3082
 Proper Shipping Name Environmentally hazardous substances, liquid, n.o.s. (IMAZETHAPYR)
 Transport hazard class(es) 9
 Packing Group III
 Marine Polutant Yes

IMDG

UN number UN3082
 Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s. (IMAZETHAPYR)
 Transport hazard class(es) 9
 Packing Group III
 Marine Pollutant Yes

TDG

UN number UN3082
 Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s. (IMAZETHAPYR)
 Transport hazard class(es) 9
 Packing Group III
 Marine Pollutant Yes

15. REGULATORY INFORMATION

International Inventories

Chemical name	TSCA	DSL/NDSL	EINECS/E LINCS	ENCS	IECSC	KECL	PICCS	AICS
Technical Imazethapyr	X				X			
Ammonium hydroxide	X	X	X	X	X	X	X	X
Trade Secret	X	X	X	X	X	X	X	X
Trade Secret	X	X	X	X	X	X	X	X

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

US Federal Regulations

CERCLA

Not applicable

SARA 313

Not applicable

CWA (Clean Water Act)

Not applicable

US State Regulations

Not applicable

U.S. State Right-to-Know Regulations

Not applicable

Pesticide Registration Number Pest Control Product Reg. No. 30017**Product Statement**

This chemical is a product registered by the Canadian Pest Control Products Act and is subject to certain labeling requirements under federal law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-PCPA registered chemicals. Read the approved label, authorized under the Pest Control Products Act, prior to using or handling the pest control product. Following is the hazard information as required on the pesticide label:

Pesticide Label

N/A

Difference between SDS and pesticide label

	PCPA	OSHA
Signal Word	N/A	Warning
Acute toxicity- inhalation	May be harmful if inhaled	Harmful if inhaled
Acute toxicity- dermal	May be harmful if absorbed through the skin	N/A
Acute toxicity- Oral	May be harmful if swallowed	N/A

16. OTHER INFORMATION

NFPA**Health Hazards**

1

Flammability

1

Instability

0

Special Hazards

None

HMIS**Health Hazards**

1

Flammability

1

Physical hazards

0

Personal Protection

See Section 8

Issue Date:

07-Nov-2018

Revision Date:

07-Nov-2018

Revision Note:

New format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet



The Water Conditioner

WHAT IS IT?

- pHix® is a water conditioner formulated with a stabilized Sulfur.
- It creates an ideal environment in the spraying tank for maximum herbicide efficacy by reducing water hardness to levels below 50 ppm.
- pHix® has also an acidic nature that allows lowering the pH of the spray solution to 2.5-3.5.
- The product is available in 10 L jugs, 450 L and 1000 L IBC's.

WHEN & WHY USE IT?

- Use with glyphosate at pre-burn and for crop desiccation.
- Traditional spray water has a level of hardness of 100-800 ppm and a pH of around 7.5.
- The Sulfur fraction in pHix® causes Gypsum to precipitate out of the water thereby improving the water quality.
- pHix® lowers the solution pH to the point where Glyphosate cannot be chemically tied up with positively charged ions such as Calcium, Magnesium and Iron, which are the source of water hardness.
- Improves solubility of other Phosphate-based pesticides.
- Benefits of "facilitated diffusion" from the urea-based component of pHix®.

WHAT TO EXPECT?

- pHix® improves water quality, which is critical to herbicide performance and efficacy.
- pHix® is much more effective at lowering the pH in the spray tank compared to Ammonium Sulphate.
- pHix® has a low usage rate.
- A 10 L jug can treat 400 acres at 5 US gal/ac spraying volume.
- pHix® is extremely economical.



Glyphosate on foxtail barley



pHix® & Glyphosate on foxtail barley

Application Guidelines

- For use with Glyphosate and other Phosphate-based pesticides requiring low pH.
- It is suggested that water be tested for both pH and level of hardness. Water with higher mineral content will require higher rates of pHix®.
- Always add pHix® FIRST to condition the water before adding the pesticide.
- Spring Rate for pre-burn: 0.5 L/100 US gal of water.
- Fall Rate as a harvest aid and desiccation of hard to kill weeds: 1.0-2.0 L/100 US gal of water.
- For in-crop use during the season, use *sopHtner95™* instead of pHix® to soften the water.

*pHix® is a registered trademark of OMEX Agriculture Inc.

VARIABLES	PHIX®	AMMONIUM SULPHATE
Nitrogen	Urea - neutral Ammonium low burn potential	Ammonium higher burn potential
Sulphur	Stabilized Sulphuric acid	Sulphate
pH - Concentrate	1.0	4.5-5.0
pH - Spray Solution	2.3-3.5	5.0+
Rate	0.5 L/400 L 0.125% of the spray solution	1 L/ac 2.5-5.0% of the spray solution



866-860-9660 / omexcanada.com

290 Agri Park Road, Oak Bluff, MB R4G 0A5

SAFETY DATA SHEET

Section 1: Identification

1.1 Product identifier:
pHIX

1.2 Recommended use of the chemical and restrictions on use:
Agricultural fertilizer

1.3 Details of the supplier of the Safety Data Sheet:
Omex Agriculture Inc.
290 Agri Park Road
Oak Bluff, MB, Canada
R4G 0A5
Web address: www.omexcanada.com
(204) 477-4052

Section 2: Hazards Identification

2.1 Classification of the substance or mixture according to GHS Classifications (UNECE 3rd Revised Edition):
Eye Damage Category 1; H318: Causes serious eye damage.

2.2 Label elements:



Danger
H318: Causes serious eye damage.
Prevention

P280: Wear protective gloves/protective clothing and eye protection/face protection.

Response

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present, and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER or doctor/physician.

2.3 Other hazards:

May cause serious skin irritation. May be harmful if swallowed. May cause respiratory tract irritation.
Use caution when mixing this product with other agricultural chemicals; some chemicals may be incompatible.

2.4 Other hazard classifications:

Canada: This is a controlled product under WHMIS.



D2B : Material causing other toxic effects - Eye damage.

USA: This material is considered a hazardous chemical by the OSHA Hazard Communication Standard 29CFR 1910.1200 (2012).

Section 3: Composition/Information on Ingredients

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Wt.%</u>	<u>GHS Classifications</u> according to UNECE 3 rd Revised Edition
Urea sulfate	21351-39-3	60 - 80	Eye damage Cat. 1; H318



SAFETY DATA SHEET

Section 4: First-aid Measures

4.1 Description of first aid measures:

Inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If exposed or concerned: Get medical advice/attention.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present, and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Skin Contact: Wash with soap and plenty of water. Obtain medical attention if irritation persists.

Ingestion: If swallowed, call a POISON CENTER or doctor/physician.

4.2 Most important symptoms and effects, both acute and delayed:

Inhalation: If airborne mists are generated, product may cause respiratory tract irritation. Symptoms include irritation to the mouth, nose, throat and eyes, chest pain, cough and/or difficulty breathing.

Eye Contact: Liquid and spray mist cause severe eye irritation and possibly permanent eye damage.

Skin Contact: Liquid may cause skin irritation. Prolonged contact with the skin may cause severe irritation and possibly chemical burns of the skin.

Ingestion: If swallowed, expected to cause severe irritation to the lips, mouth, throat and stomach with nausea, and vomiting.

4.3 Indication of any immediate medical attention and special treatment needed:

If in eyes or if experiencing breathing difficulties, get medical advice immediately.

Section 5: Fire-fighting Measures

5.1 Extinguishing media:

Use extinguishing agents appropriate for the surrounding fire conditions.

5.2 Special hazards arising from the substance:

Can vigorously decompose under high temperature conditions $>110^{\circ}\text{C}$ ($>230^{\circ}\text{F}$) to release carbon dioxide gas. Small quantities of carbon dioxide will be released under normal storage conditions. If material is exposed to prolonged heat in a fire, oxides of carbon, nitrogen and sulfur may be formed.

Do not allow water to enter container because of violent reaction. Container explosion may occur under fire conditions or when heated. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Responders should consider the need for evacuation based on concentrations of emitted decomposition products. Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminum, tin, lead and zinc.

5.3 Advice for firefighters:

As for any fire, evacuate the area and fight the fire from a safe distance. Firefighters must wear full protective clothing and positive pressure self-contained breathing apparatus.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

Spilled liquid may be a slipping hazard.

Wear eye/face protection. Wear gloves. Wash exposed skin after clean-up.

6.2 Environmental precautions:

Do not allow product to reach natural waterways or ground water. Fertilizer products may be harmful to livestock and wildlife. Clean up any spilled fertilizer products immediately, particularly where bulk quantities of fertilizers are handled.



SAFETY DATA SHEET

Section 6: Accidental Release Measures

6.3 Methods and material for containment and cleaning up:

Restrict access to the spill area. Stop the spill if it is safe to do so. Keep unnecessary and unprotected personnel from entering. Wear adequate personal protective equipment. Ventilate area.

Soak up the spilled liquid using a suitable inert absorbent (dry earth or sand). Dilute 3 to 1 with water. Spilled liquid can be neutralized by trained personnel, by slowly and carefully applying powdered limestone or sodium carbonate to spill. Allow time to neutralize. Use appropriate equipment to recover a corrosive liquid for disposal. Ensure disposal complies with government requirements and local regulations. Clean the spill area with plenty of water.

6.4 Additional Information:

See Section 8 for information on selection of personal protective equipment.

See Section 13 for information on disposal of spilled product and contaminated absorbents.

Section 7: Handling and Storage

7.1 Precautions for safe handling:

Keep out of reach of children.

Personnel handling this material should be well trained in the use of personal protective equipment, safe handling techniques, potential hazards and first aid requirements. Do not breathe fumes or mists. Avoid contact with eyes and skin. Keep away from incompatible materials. Ensure that an eyewash station and safety shower is near place of use. Do not eat, drink or smoke when using this product. Use only in a well-ventilated area.

7.2 Conditions for safe storage, including any incompatibilities:

Will corrode incompatible metals. Polyethylene, polypropylene or 316L stainless steel are acceptable materials of construction. Storage tanks should be designed to API Standard 650. Tanks should be vented and light coloured to reflect light and heat. Secondary containment is recommended and may be required in some jurisdictions.

Section 8: Exposure Controls / Personal Protection

8.1 Control parameters:

Occupational Exposure Limits:

Consult local authorities for acceptable exposure limits.

<u>Component</u>	<u>ACGIH TLV</u> (8-hr. TWA)_(mg/m ³)	<u>U.S. OSHA PEL</u> (8-hr. TWA) (mg/m ³)
Urea sulfate	Not established	Not established
Manufacturer's recommended exposure limits: 1 mg/m ³ TWA / 3 mg/m ³ STEL		

8.2 Exposure controls:

Engineering Controls:

Provide adequate ventilation to control exposure. Respiratory protective equipment (RPE) may be required in addition to engineering controls in workplaces where airborne mists are generated.

Personal Protection: Workers must comply with the Personal Protective Equipment requirements of the workplace in which this product is handled.

Eye/Face Protection: Wear safety glasses or chemical splash goggles. Where splashing is possible wear a face-shield.

Skin Protection: Wear water-impermeable gloves. Wear body-covering protective clothing and protective boots. Take off contaminated clothing and wash it before reuse.

Respiratory Protection: If ventilation and other engineering controls and work practices are not effective in controlling exposure to irritating mists/aerosols of this material, then wear suitable personal protective equipment including approved respiratory protective equipment (RPE). In workplaces where respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection. Consult with respirator manufacturer to determine respirator selection, use and limitations.

Other Protection: In workplaces where this product is handled in bulk quantities, have a safety shower and eyewash fountain readily available in the work area.



SAFETY DATA SHEET

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties:

Appearance:	Liquid, clear pink or blue.
Odour:	Odourless
Odour threshold:	Not applicable
pH:	Acidic
Melting point/freezing point:	5°C
Initial boiling point and boiling range:	Decomposes @ 110°C
Flash point:	Not applicable
Flammability	Non-flammable
Auto-ignition temperature:	Not applicable
Upper/lower flammability or explosive limits:	Not applicable
Explosive properties:	Non-explosive
Oxidising properties:	Non-oxidising
Sensitivity to mechanical impact:	Not available
Sensitivity to static discharge:	Not available
Vapour pressure:	Not available
Vapour density:	Not available
Relative density:	1.52 (water = 1) Bulk density: 1 520 kg/m ³
Solubility (ies):	Completely soluble in hot and cold water
Partition coefficient (n-octanol/water):	Not available
Decomposition temperature:	Not available
Viscosity:	24% (w/w)

Section 10: Stability and Reactivity

10.1 Reactivity:

Not classified for reactivity hazards.

10.2 Chemical Stability:

Stable at normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of Hazardous Reactions:

Reactive or incompatible with hypochlorites, sulfides, alkaline materials and many metals. Toxic or flammable gases may be formed or unacceptable corrosion may result

Corrosive to copper, aluminum and zinc. Corrosive to mild steel, especially when diluted. Slightly corrosive to 304 stainless steel. Non-corrosive to fiberglass, CPVC, polyethylene, polypropylene or 316L stainless steel. Consult a metallurgical specialist to ensure compatibility with handling equipment.

Reacts vigorously with water, especially when water is added to the product. Care must be taken to prevent excessive heating or spatter.

Do not allow water to enter container because of violent reaction. Container explosion may occur under fire conditions or when heated.

Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminum, tin, lead and zinc.

10.4 Conditions to Avoid:

Avoid high temperatures.

10.5 Incompatible Materials:

Incompatible with strong acids; reaction may be vigorous and generate heat. May be corrosive to aluminum.

Use caution when mixing this product with other agricultural chemicals. Some chemicals may be incompatible.

Contact Omex Agriculture Inc. for further information.

10.6 Hazardous Decomposition Products:

When heated above 110°C, will decompose to produce carbon dioxide.



SAFETY DATA SHEET

Section 11: Toxicological Information

11.1 Information on toxicological effects:

Acute Health Effects:

Inhalation: Data are not available. Based on pH of this material, breathing airborne mists/aerosols may cause respiratory tract irritation.

Ingestion: Swallowing may cause irritation to mouth, throat, esophagus and stomach. Urea sulfate readily degrades to urea and sulfuric acid or sulfate ions in the body.

Skin: Data are not available. Based on information for Urea sulfate, the product is expected to be moderately irritating to skin.

Eye: Data are not available. Based on information for Urea sulfate, the product is expected to cause serious eye damage.

Acute Toxicity Data: Acute oral, dermal and inhalation toxicity data are not available for this mixture. Toxicity data for the primary component substances are listed below:

<u>Component</u>	<u>LD₅₀ Oral</u> <u>(mg/kg)</u>	<u>LD₅₀ Dermal</u> <u>(mg/kg)</u>	<u>LC₅₀ Inhalation</u> <u>(mg/L, 4 hrs.)</u>
Urea sulfate	>2 000 (rat) OECD 423	>2 000 (rat) OECD 402	Not available

Chronic Health Effects:

Data are not available. Chronic exposure by inhalation may cause scarring of the lungs. Prolonged or repeated overexposures by inhalation, skin or eye contact may result in severe irritation and corrosive effects.

Sensitization:

Data are not available.

Neurological Effects:

Data are not available.

Genetic Effects:

Data are not available.

Reproductive Effects:

Data are not available.

Developmental Effects:

Data are not available.

Target Organ Effects:

Data are not available.

Carcinogenicity:

This product does not contain any component that is considered a human carcinogen by IARC (International Agency for Research on Cancer), ACGIH (American Conference of Governmental Industrial Hygienists, OSHA or NTP (National Toxicology Program).

Medical Conditions Aggravated by Exposure:

Data are not available.

Interactions With Other Chemicals:

Data are not available.



SAFETY DATA SHEET

Section 12: Ecological Information

12.1 Toxicity:

Acidic pH of this product may have an adverse effect on aquatic life. Prevent release of this product to natural waters. May be harmful to fish, livestock and wildlife.
Aquatic/Marine Toxicity: A toxic hazard to fish. Avoid spills or release to watercourses.
U.S. D.O.T.: This material is not listed as a marine pollutant.
Urea sulfate readily degrades to urea and sulfuric acid or sulfate ions in the environment.

12.2 Persistence and degradability:

Readily biodegradable

12.3 Bioaccumulative potential:

Non-cumulative when applied using normal agricultural practices.

12.4 Mobility in soil:

Highly soluble. Will disperse with current. Release to watercourses may cause effects downstream from the point of release.

Section 13: Disposal Considerations

13.1 Waste treatment methods:

Discard the empty container in household garbage. Follow municipal, provincial and federal laws and regulations, for proper disposal of fertilizer, where they apply.

Do not contaminate water when disposing of rinsate or equipment washwaters. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark.

Section 14: Transport Information

Transport Regulations:

Canadian Transportation of Dangerous Goods (TDG): Not available

USA DOT: Not regulated by DOT if transported by motor vehicle or railcar in packaging that will not react dangerously or be degraded by this material, 49 CFR 173.154 (D). Contact Omex Agriculture Inc. for further information.

IMO Classification: Not available

ICAO/IATA Classification: Not available

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

Canada

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the SDS contains all the information required by the *Controlled Products Regulations*.

WHMIS Classification:

D2B : Material causing other toxic effects - Eye damage.

DSL Status:

All component substances listed on the DSL (Domestic Substances List).

USA

OSHA: Hazardous Chemical according to OSHA Hazard Communication Standard 29 CFR 1910.1200 (2012). See Section 2 for GHS hazard classifications.



SAFETY DATA SHEET

Section 16: Other Information

Revision date: June 4, 2013

References and sources for data:

CCOHS – ChemInfo
Supplier MSDS – Urea sulfate
US, EPA: Tolerance Reassessment Eligibility Decision for Urea Sulfate. June 2005

Legend to abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienists
GHS- Globally Harmonised System for Classification and Labeling
IARC – International Agency for Research on Cancer
LD50- Median lethal dose; the dose causing 50 % lethality
LEV- Local exhaust ventilation
OSHA – United States, Occupational Safety and Health Administration
STEL – Short term exposure limit
TWA – Time weighted average
TLV - Threshold Limit Value
NTP – National Toxicology Program
WHMIS – Canada, Workplace Hazardous Materials Information System

Supplier Note:

The information contained herein is, to the best of the Supplier's (Omex Agriculture Inc.) knowledge and belief, accurate and reliable as of the date of preparation of this document. However, no warranty or guarantee, express or implied, is made as to the accuracy or reliability, and the Supplier shall not be liable for any loss or damage arising out of the use thereof. No authorization is given or implied to use any patented invention without a license. In addition, the Supplier shall not be liable for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices or from any hazards inherent in the nature of the product.

Container label

GROUP	3	FUNGICIDE
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IPCO[®]

Pivot[®] 418 EC

FUNGICIDE

COMMERCIAL

Emulsifiable concentrate for broad-spectrum disease control in: Wheat, Barley, Oats, Canola, Corn, Soybeans (grown for seed), Dry Edible Beans, Canary Seed (suppression of Septoria Leaf Mottle), Peaches, Nectarines, Plums, Sweet Cherries, Sour Cherries, Apricots, Highbush and Lowbush Blueberries, Saskatoon Berries, Cranberries, Caneberries, Strawberries, Rutabagas, Asparagus, Western Red Cedar, and Kentucky Bluegrass (grown for seed).

FOR SALE FOR USE ON TIMOTHY HAY IN THE PRAIRIE PROVINCES ONLY.

GUARANTEE:

Propiconazole..... 418 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

REGISTRATION NO.: 28219
PEST CONTROL PRODUCTS ACT

WARNING



POISON

EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

Net Contents: 1.2L, 2.4L, 4.8L, 9.6L

Interprovincial Cooperative Limited,
P.O. Box 1050, Saskatoon, Saskatchewan, S7K 3M9
1-204-233-3461

RC 588-1013

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID:

Contains petroleum distillates at greater than 10%. DO NOT induce vomiting. Contact a poison control centre or a physician, taking the labelled container with you.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin IMMEDIATELY with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor IMMEDIATELY for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

There is no specific antidote for this product. Apply symptomatic therapy. This product contains PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia.

PRECAUTIONS:

KEEP OUT OF THE REACH OF CHILDREN. Do not get in eyes, on skin or on clothing. Avoid breathing spray mist or vapours. Harmful or fatal if swallowed, inhaled or absorbed through the skin. Causes eye and skin irritation. This product may cause skin-sensitization reactions in certain individuals.

For all uses of IPCO PIVOT 418 EC, wear long pants, a long-sleeve shirt, chemical resistant footwear, socks, overalls and chemical resistant gloves during mixing/loading, application, clean-up and repair activities. Wear protective goggles or faceshield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used.

Do not eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separately from other laundry before reuse. Do not contaminate food or feed.

DO NOT allow entry into treated area until dry or for 12 hours; whichever is greater, following application. See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

NOTE: Do not graze animals on green crops treated with IPCO PIVOT 418 EC. This product contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web-site at www.croplife.ca.

STORAGE:

To prevent contamination, store this product away from food or feed.

DISPOSAL OF UNUSED, UNWANTED PRODUCT:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

CONTAINER DISPOSAL:

For recyclable containers: DO NOT reuse this container for any other purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING CALL 1-613-996-6666.

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms and non-target terrestrial plants. To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application of this product when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. The use of IPCO PIVOT 418 EC may result in contamination of groundwater, particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland. Observe buffer zones specified under DIRECTIONS FOR USE.

IPCO[®]

Pivot[®] 418 EC

FUNGICIDE

COMMERCIAL

Emulsifiable concentrate for broad-spectrum disease control in: Wheat, Barley, Oats, Canola, Corn, Soybeans (grown for seed), Dry Edible Beans, Canary Seed (suppression of Septoria Leaf Mottle), Peaches, Nectarines, Plums, Sweet Cherries, Sour Cherries, Apricots, Highbush and Lowbush Blueberries, Saskatoon Berries, Cranberries, Caneberries, Strawberries, Rutabagas, Asparagus, Western Red Cedar, and Kentucky Bluegrass Grown for Seed.

FOR SALE FOR USE ON TIMOTHY HAY IN THE PRAIRIE PROVINCES ONLY.

GUARANTEE:

Propiconazole..... 418 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

REGISTRATION NO.: 28219
PEST CONTROL PRODUCTS ACT

WARNING



POISON

**EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

Net Contents: 1 – 1,000 L

Interprovincial Cooperative Limited,
P.O. Box 1050, Saskatoon, Saskatchewan, S7K 3M9
1-204-233-3461

RC 588-1013

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID:

Contains petroleum distillates at greater than 10%. DO NOT induce vomiting. Contact a poison control centre or a physician, taking the labelled container with you.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin IMMEDIATELY with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If swallowed, call a poison control centre or doctor IMMEDIATELY for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

There is no specific antidote for this product. Apply symptomatic therapy. This product contains PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia.

PRECAUTIONS:

KEEP OUT OF THE REACH OF CHILDREN. Do not get in eyes, on skin or on clothing. Avoid breathing spray mist or vapours. Harmful or fatal if swallowed, inhaled or absorbed through the skin. Causes eye and skin irritation. This product may cause skin-sensitization reactions in certain individuals.

For all uses of IPCO PIVOT 418 EC, wear long pants, a long-sleeve shirt, chemical resistant footwear, socks, overalls and chemical resistant gloves during mixing/loading, application, clean-up and repair activities. Wear protective goggles or faceshield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used.

Do not eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

After work, change clothing and wash entire body thoroughly. Wash contaminated working clothes separately from other laundry before reuse. Do not contaminate food or feed.

DO NOT allow entry into treated area until dry or for 12 hours; whichever is greater, following application. See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

NOTE: Do not graze animals on green crops treated with IPCO PIVOT 418 EC.

This product contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

STORAGE:

To prevent contamination, store this product away from food or feed.

DISPOSAL OF UNUSED, UNWANTED PRODUCT:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

CONTAINER DISPOSAL:

For recyclable containers: DO NOT reuse this container for any other purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING CALL 1-613-996-6666.

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms and non-target terrestrial plants. To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application of this product when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. The use of IPCO PIVOT 418 EC may result in contamination of groundwater, particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland. Observe buffer zones specified under DIRECTIONS FOR USE.

DIRECTIONS FOR USE:

This product is not to be used around homes or other residential areas such as parks, school grounds, or playing fields. It is not for use by homeowners or other unlicensed users.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use this product to control aquatic pests. **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

DO NOT use in greenhouses.

DO NOT allow entry into treated area until dry or for 12 hours; whichever is greater, following application. See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

NOTE: Do not graze animals on green crops treated with IPCO PIVOT 418 EC.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the ground.

Airblast application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift

caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing or rotor span.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				Terrestrial Habitat
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer*	Rutabagas, cranberries, strawberries, asparagus, Kentucky bluegrass , Western cedar, Beans, soybeans, corn, wheat, oats, canary seed, canola, barley , Timothy Hay		1	0	1	1	1
Airblast	Cherries	Early Growth Stage	5	0	10	3	10
		Late Growth Stage	2	0	4	2	4
	Blueberries, apricots, nectarines, peaches, plums, Saskatoon berries, Caneberries	Early Growth Stage	4	0	5	2	5
		Late Growth Stage	2	0	3	1	3
Aerial	beans, corn, oats, wheat, barley , , blueberries, Kentucky bluegrass	Fixed Wing	1	0	3	1	20
		Rotary wing	1	0	1	1	20

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud or curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where the individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

GENERAL INFORMATION:

Introduction: IPCO PIVOT 418 EC is a broad-spectrum systemic fungicide for control of a wide range of diseases on certain crops. IPCO PIVOT 418 EC will protect the crop from yield and quality losses due to disease. IPCO PIVOT 418 EC may be used in conjunction with higher seeding rates, higher fertilizer inputs, plant growth regulators and other fungicides as required. (See "NOTE" under PRECAUTIONS)

Crop Information: IPCO PIVOT 418 EC may be applied to:

Winter Wheat
 Spring Wheat (including Hard Red, Durum, Canada Prairie, Soft White)
 Spring Barley
 Oats
 Canola
 Corn (including Field, Seed and Sweet)
 Soybeans (grown for seed)
 Canary Seed
 Dry Edible Beans (including kidney, navy and white bean)
 Timothy Hay
 Peaches
 Nectarines
 Plums
 Cherries (Sweet and Sour)
 Apricots
 Berries (Highbush and Lowbush Blueberries, Saskatoon Berries, Cranberries, Caneberries and Strawberries)
 Rutabagas
 Asparagus
 Western Red Cedar
 Kentucky Bluegrass (grown for seed)

Diseases Controlled:

Crop	Diseases
Winter Wheat and Spring Wheat (including Hard Red, Durum, Canada Prairie, Soft White)	Septoria Leaf Spot; Septoria Glume Blotch; Powdery Mildew; Leaf and Stem Rust; Tan Spot; Stripe Rust
Spring Barley	Net Blotch; Spot Blotch; Scald; Powdery Mildew; Septoria Leaf Spot; Leaf Rust; Stem Rust
Oats	Septoria Leaf Blotch; Crown Rust
Canola	Blackleg
Corn (including Hard Red, Durum, Canada Prairie and Soft White)	Rusts, Northern Corn Leaf Blight, Southern Corn Leaf Blight, Helminthosporium Leaf Spot, Eye Spot, Grey Leaf Spot
Soybeans (grown for seed)	Frogeye Leaf Spot (<i>Cercospora spp.</i>), Aerial Web Blight (<i>Rhizoctonia solani</i>)
Canary Seed	Septoria Leaf Mottle
Dry Edible Beans (including	Rust

kidney, navy and white beans)	
Timothy	Purple eyespot (<i>Cladosporium phlei</i>)
Cranberries	Cottonball (<i>Monilinia oxycocci</i>)
Kentucky Bluegrass (grown for Seed)	Powdery Mildew
Lowbush Blueberries	Monilinia Blight (Mummyberry)
Highbush Blueberries	Mummyberry (<i>Monilinia vaccinii – corymbosi</i>)
Peaches, Nectarines, Plums, Apricots,	Brown Rot Blossom Blight, Fruit Brown Rot
Sweet and Sour Cherries	Brown Rot Blossom Blight, Fruit Brown Rot, Cherry Leaf Spot (<i>Blumeriella jaapii</i>)
Plums and Sour Cherries	Black Knot (<i>Apiosporina morbosa</i>) [suppression only]
Rutabagas	Powdery Mildew
Asparagus	Rust (<i>Puccinia asparagi</i>)
Saskatoon Berries	Entomosporium Leaf and Berry Spot, Saskatoon Juniper Rust
Caneberries	Yellow Rust
Strawberries	Leaf spot (<i>Mycosphaerella fragariae</i>)
Western Red Cedar	Keithia Foliar Blight

Factors Affecting IPCO PIVOT 418 EC Performance: IPCO PIVOT 418 EC should be applied as a preventative disease control measure. Established diseases are more difficult to control and may have already reduced crop vigour.

If rainfall occurs within one hour of application, reapplication is necessary.

AERIAL APPLICATION:

DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. High humidity and low temperatures (10 – 20°C) allow for a better deposition of spray droplets.

SPRAYER AND APPLICATION INFORMATION:

The performance of this product depends on correct application. Follow the guidelines given below for optimal application of IPCO PIVOT 418 EC.

Sprayer Information:

	GROUND APPLICATION	AERIAL APPLICATION
Spray Volume	Minimum 200 L of water per hectare	40 - 50 L of water per hectare
Spray Pressure	200 - 300 kPa	100 - 200 kPa
Nozzle Type	110° Flat Fan (XR11004, 4110-20)	Flat Fan 6510-6515 or Hollow Cone (D8-45)
Droplet Size	Medium Spray (300 - 400 microns VMD)	Medium Spray (350 - 400 microns VMD)
Ground Speed	10 km/h	n/a

Nozzle Angle	90° (straight down)	90° (straight down)
Boom Height	40-50 cm above the crop canopy	2-3 m above the crop canopy

Ground Application:

Mixing and Spraying Instructions:

- Spray equipment should be thoroughly flushed with clean water before mixing IPCO PIVOT 418 EC.
- Fill spray tank 1/2 full with clean water. Engage gentle agitation.
- Add the required amount of IPCO PIVOT 418 EC and agitate thoroughly.
- Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tank mix partner.
- Complete filling the spray tank with water, maintaining agitation during mixing and spraying operations.
- Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Aerial Application:

Mixing and Spraying Instructions:

- Spray equipment should be thoroughly flushed with clean water before mixing IPCO PIVOT 418 EC.
- Fill pre-mix tank 1/2 full with clean water. Engage gentle agitation.
- Add the required amount of IPCO PIVOT 418 EC and agitate thoroughly.
- Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tank mix partner.
- Complete filling the premix tank with water.
- Maintain gentle agitation during mixing.
- Transfer the premix contents into the aircraft spray tank.
- Maintain sufficient agitation during the mixing and spraying operation to ensure IPCO PIVOT 418 EC remains in suspension.
- Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for a specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

AERIAL APPLICATION USE PRECAUTIONS:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application, as

outlined in the *National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides*. Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Coarse sprays are less likely to drift; therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty.

AERIAL APPLICATION OPERATOR PRECAUTIONS:

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application. The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label. All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

PRODUCT SPECIFIC PRECAUTIONS:

Read and understand the entire label before opening this product. If you have questions call the manufacturer at 1-204-233-3461 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this specific product must meet and/or conform to the following:

- Apply the recommended rate in a minimum spray volume of 40 litres per hectare.
- DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application.
- High humidity and low temperatures (10 – 20 ° C) allow for a better deposition of spray droplets.

Fertilizer:

Mixing and Spraying Instructions:

If desired, small amounts of nitrogen may be applied with IPCO PIVOT 418 EC. The appropriate amount of urea can be dissolved in water and added to the spray tank before adding IPCO PIVOT 418 EC. The rate of actual nitrogen must not exceed 10 kg/ha.

CAUTION: Excessive nitrogen concentrations may injure the crop.

NOTE: DO NOT add nitrogen when tank-mixing IPCO PIVOT 418 EC with a herbicide.

WHEAT, BARLEY AND OATS SPRAY SCHEDULE

<p>INSTRUCTIONS FOR USE: Apply IPCO PIVOT 418 EC at the very early stages of disease. This could occur anytime during tillering or stem elongation. Typically, an application from the beginning of stem elongation up to flag leaf emergence is required. IPCO PIVOT 418 EC lasts about three weeks in the plant. If conditions favourable to disease continue after this length of time, another application will be necessary to maintain control. The second spray is usually applied at the time of head emergence. In most cases, this second application is essential to maintain control of the <i>Septoria</i> disease complex. LAST APPLICATION MUST BE MADE PRIOR TO 45 DAYS BEFORE HARVEST (45 day PHI).</p>	
CROP/DISEASES	<p>WHEAT: Septoria Leaf Spot, Tan Spot SPRING BARLEY: Net Blotch</p>
RATE/HA	150 - 300 mL
EARLY Application	At G.S. 12-23 (as early as the two leaf stage). For early season disease suppression, use the lower rate for suppression under normal field conditions. Use the higher rate for control if there is a history of high disease pressures in the field and/or field conditions favour disease development.
LATER Application	At the first sign of disease (G.S. 29-37) or before head is half emerged (G.S. 49- 55). Apply only the high rate on any application from G.S. 29-55.
MAXIMUM NUMBER OF APPLICATIONS PER SEASON	2
CROP/DISEASES	<p>WHEAT: Septoria Leaf Spot and Glume Blotch, Powdery Mildew, Leaf and Stem Rust, Tan Spot, Stripe Rust</p> <p>SPRING BARLEY: Net Blotch, Spot Blotch, Scald, Powdery Mildew, Septoria Leaf Spot, Leaf and Stem Rust</p> <p>OATS: Septoria Leaf Blotch, Crown Rust</p>

RATE/HA	300 mL
EARLY Application	At the first sign of disease, usually at the beginning of stem elongation (G.S. 29- 37).
LATER Application	Before head is half emerged (G.S. 49-55).

HERBICIDE TANK-MIXING - WHEAT & BARLEY:

IPCO PIVOT 418 EC can be tank-mixed with ONLY ONE of these herbicides:

2,4-D Amine	HORIZON 240EC Herbicide TANK MIX(Wheat only)
MCPA Amine	Pardner [®]
Buctril [®] M	Brotex [®] 240
Logic [®] M	Bromotril [®] 240 EC
Badge [®]	

Tank-mixing Precautions:

- Do not tank-mix IPCO PIVOT 418 EC with herbicides for application onto Oats.
- Weeds and crops must be at the correct stage of growth as specified in both the IPCO PIVOT 418 EC label and the tank mix partner label.
- 2,4-D Amine and MCPA Amine formulations may be applied either by ground application or aerial application; tank-mixtures of IPCO PIVOT 418 EC and Logic M /Badge/Buctril M or Brotex 240 /Bromotril 240 EC/Pardner can only be applied by ground application.
- Consult the label of the herbicide partner for a list of weeds controlled under directions for use and precautions.
- When tank mixing, adhere to the most restrictive label limitations and precautions.
- Compatibility should always be confirmed by premixing small proportional quantities of water, IPCO PIVOT 418 EC, and the tank-mix partner in advance.

NOTE: Do not graze animals on treated green crops within three days of application of IPCO PIVOT 418 EC. Do not feed straw from crops treated with herbicide tank mixes to livestock.

HERBICIDE TANK-MIXING – WHEAT ONLY:

FOR USE ONLY IN THE PRAIRIE AND PEACE RIVER, OKANAGAN AND CRESTON FLATS REGIONS OF BRITISH COLUMBIA.

IPCO PIVOT 418 EC can be tank-mixed with HORIZON 240EC Herbicide TANK MIX for disease and grassy weed control.

Tank-mixing Precautions:

- Do not apply by air.
- Consult the label of HORIZON 240EC Herbicide TANK MIX for a list of weeds controlled, directions for use and precautions.
- Apply prior to emergence of the 4th tiller (herbicide timing).

TIMOTHY SPRAY SCHEDULE

INSTRUCTIONS FOR USE: Apply IPCO PIVOT 418 EC at the very early stages of disease. If conditions favourable to disease continue after this length of time, another application will be necessary to maintain control. DO NOT APPLY BY AIR.	
DISEASE	Purple eyespot
RATE/HA	300 ml
EARLY Application	At the first sign of disease, usually at the beginning of flowering (G.S. 59-61).
LATER Application	Full flowering (G.S. 65-73).
Minimum Interval between Applications	14 days
Maximum Seasonal Application Rate	2 applications at 300 mL/ha (600 mL/ha in a season).
LAST APPLICATION MUST BE MADE PRIOR TO 14 DAYS BEFORE HARVEST (14 day PHI).	

CANOLA SPRAY SCHEDULE

INSTRUCTIONS FOR USE: IPCO PIVOT 418 EC will control blackleg and enhance yield potential during the early stages of canola growth. The disease may reappear later in the season, but with minimal effect on yield.				
DISEASE	RATE/HA	REMARKS / TIMING		
Blackleg	300 mL	Apply during the rosette stage: between 2 nd true leaf and bolting.		
		Seedling	Rosette	Bud (Bolted)
		Stage 1	Stage 2	Stage 3
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST (60 day PHI).				

TANK-MIXING – SEED CORN, FIELD CORN and SWEET CORN

IPCO PIVOT 418 EC can be tank-mixed with ONLY ONE of the following partners:

MATADOR[®] 120EC
 WARRIOR[®] INSECTICIDE
 RIPCORDER[®]

Tank-mixing Precautions:

- DO NOT APPLY THE TANK MIX WITH WARRIOR INSECTICIDE BY AIR.
- The tank mix of IPCO PIVOT 418 EC + MATADOR 120EC or IPCO PIVOT 418 EC + RIPCORDER can be applied by air and ground. Use 40 L of water per hectare when applying by air.
- Insects and crops must be at the correct stage as specified on the IPCO PIVOT 418 EC as well as MATADOR 120EC, WARRIOR INSECTICIDE and RIPCORDER labels. Follow the directions for use and precautions on all labels.
- A PHI of 14 days must be respected when using these tank-mixes on field and sweet corn.

- Compatibility should always be confirmed by premixing small proportional quantities of water, IPCO PIVOT 418 EC, and the tank-mix partner in advance.

SEED CORN, FIELD CORN AND SWEET CORN SPRAY SCHEDULE

DISEASES	Rusts
RATE/HA IPCO PIVOT 418 EC alone	300 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR 120 EC or 83 mL WARRIOR INSECTICIDE or 175 mL RIPCORD
REMARKS	Apply 300 mL/ha of IPCO PIVOT 418 EC when rust pustules first appear. Under severe disease pressure, make a second application 14 days after. Seed corn only: under severe disease pressure, make a third application 14 days after. DO NOT apply the tank mix with WARRIOR Insecticide by air.
DISEASES	Northern Corn Leaf Blight Southern Corn Leaf Blight Helminthosporium Leaf Spot
RATE/HA IPCO PIVOT 418 EC alone	150 - 300 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR 120EC or 83 mL WARRIOR INSECTICIDE or 175 mL RIPCORD
REMARKS	Apply 150 – 300 mL/ha of IPCO PIVOT 418 EC when disease first appears. Use the 150 mL rate if disease pressure is low. DO NOT apply the tank mix with WARRIOR INSECTICIDE by air.
DISEASES	Eye Spot Grey Leaf Spot
RATE/HA IPCO PIVOT 418 EC alone	300 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR 120EC or 83 mL WARRIOR INSECTICIDE or 175 mL RIPCORD
REMARKS	Apply 300 mL of IPCO PIVOT 418 EC per hectare when disease first appears. DO NOT apply the tank mix with WARRIOR INSECTICIDE by air.
A restricted entry interval of 1 day is required for workers hand-harvesting and detasseling treated corn (1 day REI).	

SOYBEANS GROWN FOR SEED SPRAY SCHEDULE

DISEASE	Frogeye Leaf Spot (<i>Cercospora spp.</i>) Aerial Web Blight (<i>Rhizoctonia solani</i>)
RATE/HA	300 - 455 mL
REMARKS	Apply 300 - 455 mL of IPCO PIVOT 418 EC per hectare, using ground application equipment only, when disease first appears. Under severe disease pressure, make a second application 14 days after the first application. Do not harvest soybeans within 50 days of the last application (50 day PHI). For use only on soybeans grown for seed. Harvested soybean seed should not be used for human food or animal feed.

CANARY SEED SPRAY SCHEDULE

DISEASE	Septoria leaf mottle
RATE/HA	300 mL
REMARKS	For the suppression of Septoria leaf mottle; make one application at emergence of flag leaf; ground application only; apply in 200 L water/ha.

DRY EDIBLE BEANS SPRAY SCHEDULE

DISEASE	Rust
RATE/HA	300 mL
REMARKS	Apply 300 mL of IPCO PIVOT 418 EC in minimum of 200 L of water per hectare by ground application or in 40 to 50 L of water per hectare by aerial application at the first detection of disease in the field and a second application 14 to 21 days later. APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF IPCO PIVOT 418 EC TO DRY EDIBLE BEANS. DO NOT APPLY WITHIN 28 DAYS OF HARVEST (28 day PHI).

**PEACHES, NECTARINES, PLUMS, SWEET & SOUR CHERRIES, AND APRICOTS
SPRAY SCHEDULE**

DISEASE	Brown Rot, Blossom Blight
RATE/HA	300 mL
REMARKS	Apply 300 mL of IPCO PIVOT 418 EC in a minimum of 500 L of water per hectare. Make 1 st application at early bloom with a 2 nd application at 50% - 75% bloom. If disease conditions persist, make a 3rd application at petal fall.
DISEASE	Fruit Brown Rot
RATE/HA	300 mL
REMARKS	Apply no more than 2 applications in the 3 weeks prior to harvest. Apply 300 mL of product in a minimum of 500 L of water per hectare by ground.
DISEASE	Cherry Leaf Spot (<i>Blumeriella jaapii</i>)-sweet and sour cherries
RATE/HA	300 mL
REMARKS	Apply a maximum of 3 applications per season for control of Cherry Leaf Spot. Make the 1st application at petal fall. In the 3 weeks prior to harvest make a 2 nd and 3 rd application at a 7- 10 day interval. Do not apply within 3 days of harvest. Apply 300 mL of product in a minimum of 500 L of water per hectare by ground.
DISEASE	Suppression of Black Knot (Plums and Sour Cherries ONLY)
RATE/HA	300 mL
REMARKS	Apply 300 mL of IPCO PIVOT 418 EC in a minimum of 500 L of water per hectare by ground. Make 1st application at early bloom with a 2nd application at 50% - 75% bloom. If disease conditions persist, make a 3rd application at petal fall.
<p>DO NOT APPLY WITHIN 3 DAYS OF HARVEST (3 day PHI). DO NOT REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION (3 day REI). IF REQUIRED, INDIVIDUALS MAY REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION FOR SHORT TERM TASKS WHICH DO NOT REQUIRE HAND LABOUR IF AT LEAST 4 HOURS HAVE PASSED SINCE APPLICATION AND PROVIDED LONG PANTS, LONG-SLEEVED SHIRTS, AND CHEMICAL-RESISTANT GLOVES ARE WORN.</p> <p>FOR SOUR CHERRIES:</p> <p>a) It is recommended that no more than 2 consecutive applications of IPCO PIVOT 418 EC be made before switching to another fungicide with a different mode of action according to disease management practices. b) Apply a MAXIMUM of 5 APPLICATIONS PER SEASON of IPCO PIVOT 418 EC.</p>	

HIGHBUSH BLUEBERRY - SPRAY SCHEDULE

DISEASE	Mummyberry (<i>Monilinia vaccinii-corymbosi</i>)
RATE/HA	300 mL
REMARKS	Apply 1 st application at or near flower bud swelling; make a 2 nd application at leaf bud swelling. Apply by ground only, making no more than two applications per year. In BC only, apply by ground, a 3 rd application at pink bloom and a 4 th application 7 to 10 days later at early bloom, making no more than 4 applications per year. Use a minimum of 200 L of water per hectare.
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST (60 day PHI). A restricted entry interval of 5 days is required for workers hand pruning highbush blueberries (5 day REI).	

LOWBUSH BLUEBERRY - SPRAY SCHEDULE

DISEASE	Monilinia Blight
RATE/HA	300 mL
REMARKS	Apply 1 st application when flower bud scales first appear and make a 2 nd application 10 days later. Use ground application or aerial application equipment, making no more than two applications per year. Use a minimum of 200 L of water per hectare if applying by ground equipment; use 40 – 50 L of water per hectare if applying by air.
LAST APPLICATION MUST BE MADE AT LEAST 60 DAYS BEFORE HARVEST (60 day PHI).	

SASKATOON BERRY - SPRAY SCHEDULE

DISEASE	Entomosporium Leaf and Berry Spot and Saskatoon Juniper Rust
RATE/HA	300 mL
REMARKS	As a foliar spray, apply up to three applications per season. The 1 st application to occur at “white tip”, the 2 nd application at “petal fall”, and the 3 rd application at “green fruit”. Apply 300 mL in a minimum of 200 L of water per hectare by ground, applying to runoff.
LAST APPLICATION MUST BE MADE AT LEAST 38 DAYS BEFORE HARVEST (38 day PHI).	

CRANBERRY - SPRAY SCHEDULE

DISEASE	Cottonball (<i>Monilinia oxycocci</i>)
RATE/HA	300 mL
REMARKS	Apply the 1 st application at leaf bud break. Make a 2 nd application 10 – 14 days later, a 3 rd application at early bloom and a 4 th application 10 – 14 days after the 3 rd application. Make no more than four applications per year. Apply product by ground.
LAST APPLICATION MUST BE MADE AT LEAST 45 DAYS BEFORE HARVEST (45 day PHI).	

PHI).

RUTABAGAS - SPRAY SCHEDULE

DISEASE	Powdery Mildew
RATE/HA	240 mL
REMARKS	Make two applications per season with the 1 st application at 50 days after planting and the 2nd application 20 days later. Apply to vegetative foliage. Apply 240 mL in a minimum 200 L of water per hectare by ground.
LAST APPLICATION MUST BE MADE AT LEAST 21 DAYS BEFORE HARVEST (21 day PHI).	

ASPARAGUS - SPRAY SCHEDULE

DISEASE	Rust (<i>Puccinia asparagi</i>)
RATE/HA	150 mL
REMARKS	Apply IPCO PIVOT 418 EC to asparagus ferns in Ontario and Québec only. Once harvest is complete, make the 1st application of IPCO PIVOT 418 EC as soon as fern growth begins, followed by applications at 14 to 21 day intervals. For new, non-harvested plantings, apply IPCO PIVOT 418 EC when first sign of rust is visible, followed by applications at 14 to 21 day intervals. Apply by ground only, making no more than three applications per year. Use a minimum of 370 L of water per hectare.
LAST APPLICATION MUST BE MADE AT LEAST 8 MONTHS BEFORE HARVEST (8 Month PHI).	

WESTERN RED CEDAR - SPRAY SCHEDULE

DISEASE	Keithia Foliar Blight
RATE/HA	300 mL
REMARKS	Apply using ground application equipment every four weeks. Make a maximum of 6 applications per year. Apply 300 mL of IPCO PIVOT 418 EC in a volume of 1000 L of water per hectare by ground.

KENTUCKY BLUEGRASS FOR SEED PRODUCTION - SPRAY SCHEDULE

DISEASE	Powdery Mildew
RATE/HA	300 mL
REMARKS	Apply as a foliar spray. Make no more than 2 applications per crop year with the 1st application at pre-heading and the 2nd at 50% - 100% heading. Apply in 200 - 300 L/ha of water by ground or 40 - 50 L/ha of water by air.

CANEBERRIES - SPRAY SCHEDULE

DISEASE	Yellow Rust
RATE/HA	300 mL
REMARKS	Apply 300 mL of IPCO PIVOT 418 EC in a minimum of 500 L of water per hectare by ground application at first detection of disease in the field and a second application 14 days later.
It is recommended that no more than 2 consecutive applications of IPCO PIVOT 418 EC be made before switching to another fungicide with a different mode of action according to disease management practices.	
APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF IPCO PIVOT 418 EC TO CANEBERRIES. DO NOT APPLY WITHIN 30 DAYS OF HARVEST (30 day PHI). DO NOT REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION (3 day REI). IF REQUIRED, INDIVIDUALS MAY REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION FOR SHORT TERM TASKS WHICH DO NOT REQUIRE HAND LABOUR IF AT LEAST 4 HOURS HAS PASSED SINCE APPLICATION AND PROVIDED LONG PANTS, LONG SLEEVED SHIRTS, AND CHEMICAL RESISTANT GLOVES ARE WORN.	

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Interprovincial Cooperative Ltd. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Interprovincial Cooperative Ltd. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below. Accordingly, the User assumes all risks related to performance and crop tolerance arising, and agrees to hold Interprovincial Cooperative Ltd. harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

STRAWBERRIES – SPRAY SCHEDULE

DISEASE	Leaf Spot (<i>Mycosphaerella fragariae</i>)
RATE/HA	300 mL
REMARKS	Apply 300 mL of IPCO PIVOT 418 EC per hectare by ground in enough water to ensure thorough coverage. Make 1st application when disease levels are no more than 5%. Apply IPCO PIVOT 418 EC fungicide at 10 day intervals for control of leaf spot.
It is recommended that no more than 2 consecutive applications of IPCO PIVOT 418 EC be made before switching to another fungicide with a different mode of action according to disease management practices.	
APPLY A MAXIMUM OF 4 APPLICATIONS PER SEASON OF IPCO PIVOT 418 EC TO STRAWBERRIES. DO NOT APPLY WITHIN 1 DAY OF HARVEST (1 day PHI).	

RESISTANCE MANAGEMENT RECOMMENDATIONS:

For resistance management, IPCO PIVOT 418 EC contains a Group 3 fungicide. Any fungal population may contain individuals naturally resistant to IPCO PIVOT 418 EC and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of IPCO PIVOT 418 EC or other Group 3 fungicides with different groups that control the same pathogens.
- Avoid application of more than the maximum number listed in the label and consecutive sprays of IPCO PIVOT 418 EC or other fungicides in the same group in a season.
- Use tank mixtures with fungicides from a different group that is effective on the target pathogen when such use is permitted.
- Fungicide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide applications.
- Monitor treated fungal populations for sign of resistance development. Notify Interprovincial Cooperative Ltd if reduced sensitivity of the pathogen to IPCO PIVOT 418 EC is suspected.
- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, if available.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and disease problems.
- For further information or to report suspected resistance, contact Interprovincial Cooperative Ltd. at 1-204-233-3461.

® Matador, Warrior, and Horizon are registered trademarks of a Syngenta group company.

Buctril and Pardner are registered trademarks of Bayer CropScience

Ripcord is a registered trademark of BASF

Logic and Brotex are registered trademarks of TMC distributing. Used under licence.

Badge and Bromotril are registered trademarks of Makhteshim Agan of North America Inc.

1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Pivot 418EC
Product Use: Fungicide
Pest Control Product Number: 28219

Manufacturer /Supplier: INTERPROVINCIAL COOPERATIVE LTD.
945 Marion St.
Winnipeg, Manitoba
R2J 0K7 www.ipco.ca

Emergency Contact Number: 613-996-6666 (CANUTEC; Call day or night 24 hrs.)

Effective Date: 19/04/2018

This product is regulated under authority of the Pest Control Products Act

2: HAZARD IDENTIFICATION

Classified according to UN GHS Version 5.

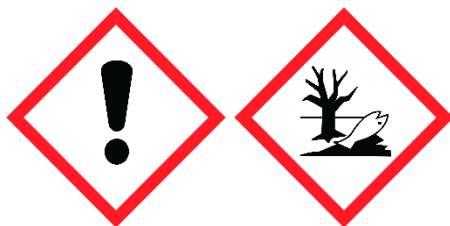
Physical Hazards: Flammable liquid Category 4

Health Hazards: Acute toxicity (Oral) Category 4
Acute toxicity (Dermal) Category 5
Acute toxicity (Inhalation) Category 4
Eye irritation Category 2A
Skin irritation Category 2
Skin sensitizer Category 1B

Environmental Hazards: Hazardous to aquatic environment, acute Category 1

Signal Word: WARNING

Hazard Statements: Combustible liquid. Harmful if swallowed. May be harmful in contact with skin. Harmful if inhaled. Causes serious eye irritation. Causes skin irritation. May cause an allergic skin reaction. Very toxic to aquatic life.



Precautionary Statements: Keep away from flames and hot surfaces. Avoid contact with skin, eyes and clothing. Wear goggles or face shield during mixing/loading. Wear coveralls or a long-sleeved shirt and long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. After use, wash hands and other exposed skin. Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Harmful if swallowed. This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms.

Effects of Overexposure:
Route of Exposure: Inhalation, eye contact, skin contact, ingestion.

In case of emergency call CANUTEC at 613-996-6666

Interprovincial Cooperative Ltd.; Information Phone: 204-233-3461

Effective Date: 19/04/2018

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Inhalation	May cause headaches, nausea, and lack of coordination. May be harmful if inhaled...
Eye Contact	Mildly irritating.
Skin Contact	Warning Skin irritant. Potential skin sensitizer.
Ingestion	May be harmful if swallowed. Aspiration can be a hazard if this material is swallowed. Will cause vomiting, nausea, diarrhea

3: COMPOSITION AND INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	% (W/W)
Propiconazole	60207-90-1	37.72 – 40.05
Solvent naphtha (petroleum), heavy aromatic	64742-94-5	33.80 – 35.90
Other ingredients:		5.51 – 6.09
1, 2, 4-Trimethylbenzene	95-63-6	
Naphthalene	91-20-3	

Ingredients not listed are proprietary or non-hazardous

4: FIRST AID MEASURES

In case of poisoning, call a physician or poison control centre IMMEDIATELY.

Inhalation:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.
Ingestion:	Call a poison control centre or doctor IMMEDIATELY for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.
Skin:	Start flushing while removing contaminated clothing. Flush skin with running water for 15 - 20 minutes. If irritation persists, repeat flushing. Call a poison control centre or doctor for treatment advice.
Eyes:	Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.
Emergency Medical Care:	Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention. There is no specific antidote if this product is ingested. Treat symptomatically. Contains petroleum distillate - vomiting may cause aspiration pneumonia. Induction of emesis is not recommended due to the large amount of petroleum solvent in this product, which could cause chemical pneumonitis if aspirated.

5: FIRE-FIGHTING MEASURES

Extinguishing Media:	Water spray, foam, or fog.
Special Fire Fighting Procedures:	Use water spray to cool fires exposed containers or structures. Wear self-contained breathing apparatus and protective clothing. Contain water from firefighting to prevent entry into water supplies.
Flash Point:	64 °C
Conditions of Flammability:	Combustible liquid. May burn under fire conditions.
Hazardous Decomposition Products:	NO _x , CO, CO ₂ and chlorides.

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Interprovincial Cooperative Ltd Information Phone: 204-233-3461

Effective Date: 19/04/2018

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National Fire Protection Association (NFPA) Hazard Rating for this Product:

Health: 1 Flammability: 2 Reactivity: 0

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

6: ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS/LEAKS: Dispose of this material and its container at hazardous or special waste collection point, in accordance with national and regional regulations. If the product has contaminated surface water, inform the appropriate authorities. Contaminated soil layers have to be dug out. In the event of minor spillage: Absorb in sand or other inert material. Use appropriate containment to avoid environmental contamination. In the event of major spillage: Collect and contain as much free liquid as possible. Dike spills using absorbent or impervious materials such as sand or clay for later disposal.

7: HANDLING AND STORAGE

Handling: Avoid contact with skin, eyes and clothing. Wear goggles or face shield during mixing/loading. Wear coveralls or a long-sleeved shirt and long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. After use, wash hands and other exposed skin. Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Do not eat, drink or smoke when using this product.

Storage: Keep away from heat, sparks and filling of containers. Keep away from children. Store the container tightly closed away from seeds, fertilizer, plants and foodstuffs. Store at normal ambient temperatures.

8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Component	EXPOSURE LIMITS		
	TWA*	STEL**	Reference/Comments
Propiconazole	Not established	Not established	No available information
Solvent Naphtha (Petroleum), Heavy Aromatic	50 mg/m ³	Not established	Supplier recommendation
Naphthalene (component of solvent)	10 ppm, 52 mg/m ³	15 ppm, 79 mg/m ³	ACGIH
1,2,4-trimethylbenzene (component of solvent)	25 ppm, 125 mg/m ³	Not established	ACGIH

*Time-weighted Average, 8-hour unless otherwise noted. **Short Term Exposure Limit

Special Engineering Controls: This product is intended for use outdoors where engineering controls are not necessary. If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV. Warehouses, production area, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities..

Eye Protection: CSA approved safety glasses with side shields or goggles.

Respiratory Protection: A NIOSH/MSHA approved air-purifying respirator equipped with organic vapor cartridges or canister with any R, P or HE filter. Air supplied respirator above TLV or unknown concentrations.

Hand and Arm: Chemical resistant (e.g. nitrile or butyl) gloves.

Feet: Socks and chemical-resistant footwear.

Body: Coveralls.

Other Personal Protection: Recommendations listed above indicate the type of equipment which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear-brownish liquid
Odour: Aromatic "Solvent" odour
Odour threshold (ppm): Not established
pH (1% Sol'n): 6.0 – 8.0

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Freezing point:	< 0 °C
Boiling point:	184 – 205 °C (solvent)
Flash Point & Method:	64 °C (Tag Closed Cup)
Evaporation rate:	< 0.01 (n-butyl acetate = 1) (solvent)
Flammability:	Class IIIA Combustible Liquid (flash point at or above 60°C and below 93.3°C)
Flammable Limits (% in air):	LEL = 0.7, UEL = 5.6 vol. % in air (solvent)
Autoignition Temperature:	433°C (solvent)
Decomposition Temp:	>320 °C (propiconazole)
Vapour pressure:	4.0 Pa @ 20 °C (solvent) 5.6 x 10 ⁻² mPa @ 25 °C (propiconazole)
Vapour density:	5.6 @ 101 kPa (Air =1) (solvent)
Specific Gravity:	1.0750 Kg/L (@ 20 °C)
Solubility in water:	Emulsifies
Solubility in liquids:	Not established
Coefficient of water/oil distribution:	Log P = 3.65 @ pH 6.6, 25 °C (propiconazole)
% volatile by volume:	Not applicable
Viscosity:	48 cps @ 20 °C

10: STABILITY AND REACTIVITY

Reactivity:	Not reactive.
Chemical Stability:	Stable under normal handling and storage conditions.
Possibility of Hazardous Reactions:	Hazardous polymerization will not occur.
Conditions to Avoid:	High temperatures, sparks, open flames, and all other sources of ignition.
Incompatible materials:	Strong acids and bases; strong oxidizing and reducing agents
Hazardous Decomposition Products:	NO _x , CO, CO ₂ and chlorides.

11: TOXICOLOGICAL INFORMATION

Skin Absorption:	Acute dermal LD ₅₀ (Rat) = >5000 mg/kg.
Ingestion:	Acute oral LD ₅₀ (Rat) = 982 mg/kg (female); >2000 mg/kg (male)
Inhalation:	LC ₅₀ (Rat) = 2.04 mg/L (4 hr., nose-only exposure)
Eye Irritation:	Moderately irritating (Rabbit)
Dermal Irritation:	Severely irritating (Rabbit)
Dermal Sensitization:	A skin sensitizer (Guinea Pig)
T.W.A. (ACGIH):	Total Hydrocarbons: 100 mg/m ³
Chronic Health Hazards:	Prolonged or repeated exposure may lead to kidney or central nervous system symptoms.
Mutagenicity Data:	None observed.
Carcinogenicity Data:	Long-term exposure of mice to high dose levels of propiconazole produced an increase in liver tumors in male mice. Propiconazole is not considered to be carcinogenic.
Teratogenicity Data:	None observed.
Reproductive Effects:	None observed.

12: ECOLOGICAL INFORMATION

The active ingredient, propiconazole, is practically nontoxic to plants birds and insects, but is very toxic to aquatic life.

Data on Propiconazole:

5-Day EC ₅₀ (ppm):	1.6 (Green Algae)
96-Hour LC ₅₀ /EC ₅₀ (ppm):	0.85 (Rainbow Trout)
48-Hour LC ₅₀ /EC ₅₀ (ppm):	4.80 (Daphnia)
14-Day LC ₅₀ (mg/kg):	2510 (Mallard Duck)

Chemical Fate Information: The active ingredient, propiconazole, has a low bioaccumulation potential, low mobility, and low to moderate persistence in soil and water. The Dissipation half-life in soil is 70 days. The main route of degradation is by microbial degradation and formation of bound residues.

In case of emergency call CANUTEC at 613-996-6666

Interprovincial Cooperative Ltd Information Phone: 204-233-3461

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13: DISPOSAL CONSIDERATIONS

Product Disposal: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

Container Disposal: Do not reuse container for any purpose. Dispose of product containers, waste containers, and residues according to label instructions and provincial requirements.

14: TRANSPORT INFORMATION

This product is exempt from parts 3-7, 9 & 10 of the Transportation of Dangerous Goods regulations according to section 1.33 when shipped by a roadway or railway vehicle.

15: REGULATORY INFORMATION

Pest Control Products Act
Registration Number: 28219
For Information Phone: 204-233-3461
Revision Date: 06/05/2020 (Reason: IPCO Logo update)

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act. These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets.

The pest control product label (the label), under the Pest Control Products Act, needs to be followed at all times and in cases where there are any discrepancies between the Pest Control Products Act label and an SDS for that product it is the label information that prevails. Note that labels under the Pest Control Products Act are not in the GHS.

16: OTHER INFORMATION

The enclosed information is supplied as a customer service and is provided in good faith. Although it has been based on data drawn from sources deemed to be reliable, IPCO cannot guarantee its accuracy and assumes no responsibility for conditions resulting from its use.



PrePass™ FLEX Herbicide

GROUP	2	HERBICIDE
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FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

PrePass FLEX Herbicide is applied in combination with glyphosate, for post emergent control of annual broadleaf weeds including cleavers, wild buckwheat and chickweed in pre-seed application for spring wheat (including durum), spring barley, winter wheat and oats.

COMMERCIAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: florasulam 25%
Water dispersible granules

REGISTRATION NO. 31259 PEST CONTROL PRODUCTS ACT

WARNING – EYE IRRITANT

NET CONTENTS: 0.02 kg - bulk

Dow AgroSciences Canada Inc.
2400, 215 – 2nd Street S.W.
Calgary, Alberta
T2P 1M4
1-800-667-3852

PRECAUTIONS

WARNING – EYE IRRITANT

KEEP OUT OF REACH OF CHILDREN

DO NOT APPLY BY AIR

Avoid contact with eyes, skin and clothing. Avoid breathing dust or spray mist. Causes eye irritation. DO NOT get in eyes.

At all times: Wear clean clothing with full length sleeves and pants.

During mixing and loading, and clean-up and repair: Wear chemical-resistant gloves. Rinse gloves before removal. Use safety glasses.

At completion of spraying or end of the day: Take a shower immediately. Wash thoroughly with soap and water before eating, drinking or smoking. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

Overspray or drift to sensitive habitats should be avoided. A buffer zone of 30 metres is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelter belts, woodlots, hedgerows, and shrublands. A buffer zone of 5 metres is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats including sloughs, ponds, prairie potholes, lakes, rivers, streams, wetlands and wildlife habitats at the edge of these bodies of water. Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Do not apply during periods of dead calm or when winds are gusty.

STORAGE

Store in original containers in a secure, dry storage. Do not allow contamination of seeds, plants, fertilizers or other pesticides. Do not contaminate food, feedstuffs or domestic water supplies. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

PrePass FLEX™ Herbicide in tank-mix with glyphosate herbicides, controls weeds prior to seeding spring wheat (including durum), spring barley, winter wheat and oats. PrePass FLEX Herbicide can be applied in the fall or spring prior to planting or as an initial treatment in summerfallow.

PrePass FLEX Herbicide is a dispersible granule that is mixed with water and applied as a uniform broadcast spray. It is non-corrosive, nonflammable, and nonvolatile.

PrePass FLEX Herbicide must be applied early post emergence to the main flush of actively growing broadleaf weeds. Warm, moist growing conditions promote active weed growth and enhance the activity of PrePass FLEX Herbicide by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds. See "DIRECTIONS FOR USE" section of this label for complete use details.

PrePass FLEX Herbicide stops growth of susceptible weeds rapidly. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent on weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

MODE OF ACTION

PrePass FLEX Herbicide inhibits the production of the ALS enzyme in plants. This enzyme is essential for the production of certain amino acids which are essential for plant growth. PrePass FLEX Herbicide is a Group 2 mode of action herbicide.

GENERAL USE PRECAUTIONS

- **DO NOT APPLY BY AIR.**
- This product has potential to leach. Do not apply excessive irrigation.
- Do not apply through any type of irrigation system.

Growing Conditions

Marginal soil fertility, saline soils, extended periods of cool, waterlogged-soil (soils at or near field capacity) conditions, and drought or seedling disease can delay seedling development, emergence and vigor and may result in reduced crop stand and seed yield. On variable fields, it should be expected that under these conditions significantly eroded knolls and side hills may have variable crop emergence and stand. In fields with these conditions, plants may show initial discoloration and can be subject to greater risk of herbicide injury. In most cases, crops will outgrow the symptoms, but in severe situations reduced crop stand, yield, quality or delayed maturity may occur.

Sensitive Plants

Do not apply PrePass FLEX Herbicide directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

Non-Target Sites

Do not apply where proximity of susceptible crops (e.g. canola and legumes) or other desirable plants is likely to result in exposure to spray or spray drift. See Environmental Hazards section of the label.

Crop Rotation

Fields previously treated with PrePass FLEX Herbicide can be seeded the following year to alfalfa, barley, canola, chickpeas, corn, fababeans, field beans, flax, Juncea canola, lentils, mustard (brown, oriental and/or yellow), oats, peas, potatoes (except seed potatoes), soybeans, sunflower, wheat, or fields can be summerfallowed.

Preharvest/Grazing Intervals

Livestock may be grazed on treated crops 7 days following application. Do not harvest the treated crop within 60 days after application.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or www.corteva.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

To Reduce Spray Drift

1. Use nozzles delivering higher volumes and coarser droplets.
2. Use low pressures (200 to 275 kPa).
3. Use 100 L/ha of spray solution.
4. Spray when the wind velocity is 15 km/hr or less.
5. Spot treatments should only be applied with a calibrated boom to prevent over-application.

Sprayer Clean-Out Instructions

To avoid injury to desirable plants, thoroughly clean equipment used to apply this product before re-use or using it to apply other chemicals.

1. Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. First rinse:
 - Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
 - Agitate and circulate for 15 minutes, and flush through booms and hoses.

- Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.
3. Second rinse:
- Fill the tank with clean water.
 - Add All Clear Spray Tank Decontaminator plus 1 L of household ammonia (containing a minimum of 3 % ammonia) per 100 L of water as per manufacturer's recommendations while filling the tank with clean water.
 - Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation. Flush the solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - If possible, let the solution stand in the sprayer tank and booms for an extended period of time, overnight if possible.
 - After flushing the boom and hoses, drain tank completely.
 - Remove nozzles and screens and clean separately with a cleaning agent or an ammonia solution (100 mL in 10 L water).
4. Third rinse:
- Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.

Do not use ammonia with chlorine bleach. Using ammonia with chlorine bleach will release a gas with a musty odour which may cause eye, nose, throat and lung irritation. Do not clean equipment in an enclosed area.

DIRECTIONS FOR USE

READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. DO NOT APPLY TO CROPS UNDERSEEDED WITH LEGUMES.

In fields with low organic matter (soils <3%) and coarse-textured soils or in fields with highly variable soils, gravelly areas, sandy areas, eroded knolls or those subject to compaction, crop injury may occur when combined with sufficient moisture (heavy rainfall, high soil moisture) to move product into the soil zone during seedling development. Under adverse conditions, the plants are less capable of metabolizing any active taken up by the roots which may result in weakened seedlings. Fields may exhibit reduced stand, yield or delayed maturity. Drought, disease or insect damage following application may also result in crop injury, grade or yield loss.

Use high quality, treated seed and plant into warm soils with favourable germination conditions. Ensure good soil fertility practices that promote rapid germination and seedling development. Fall application of PrePass FLEX is recommended on fields characterized by the above conditions.

PRE-SEED AND SUMMERFALLOW USE - PREPASS FLEX HERBICIDE + GLYPHOSATE HERBICIDES

PrePass FLEX Herbicide + glyphosate herbicides (PRESENT AS ISOPROPYLAMINE SALT, DIAMMONIUM SALT, TRIMETHYLSULFONIUM SALT, POTASSIUM SALT OR DIMETHYLAMINE SALT) will control annual broadleaf weeds and grasses when applied in the fall or spring prior to planting spring wheat (including durum), winter wheat, barley and oats, or as an initial treatment in summerfallow.

PrePass FLEX Herbicide + glyphosate must be applied to emerged actively growing weeds. Warm, moist growing conditions promote active weed growth and enhance the activity of PrePass FLEX Herbicide + glyphosate herbicides by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds.

PrePass FLEX Herbicide + glyphosate stops growth of susceptible weeds rapidly. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent on weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

Delay application until weeds have emerged to the stages described (see "Weeds Controlled or Suppressed by PrePass FLEX Herbicide + glyphosate") to provide adequate leaf surface to receive the spray. Unemerged weeds or vegetation arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Do not treat weeds under poor growing conditions such a drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This product does not provide long-term residual weed control. For subsequent residual weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statement and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oil or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

Mode of Action

This herbicide tank-mix moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

AVOID DRIFT - EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS. Do not allow spray mist to drift since even minute quantities of spray can cause severe damage or destruction to nearby crops, plants or other areas on which treatment is not intended, or may cause other unintended consequences. Do not apply when winds are gusty or in excess of 8 km/h or when other conditions, including lesser wind velocities, will allow drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in fine particles (mist) which are more likely to drift.

DO NOT USE IN GREENHOUSES. REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

Application Directions

PrePass FLEX Herbicide can be tank mixed with glyphosate herbicides (present as isopropylamine salt, diammonium salt, trimethylsulfonium salt, potassium salt or dimethylamine salt) to broaden the spectrum of broadleaf weeds. These tank mixes will provide control of most grass and broadleaf species.

**PrePass FLEX Herbicide + Glyphosate Herbicides
(present as isopropylamine salt, diammonium salt, trimethylsulfonium salt, potassium salt or dimethylamine salt)**

Apply 450 - 2500 grams a.e. per hectare of glyphosate herbicide (present as isopropylamine salt, diammonium salt, trimethylsulfonium salt, potassium salt or dimethylamine salt) tank mixed with 20 g of PrePass FLEX Herbicide per hectare.

Always refer to the product label for the tank-mix partner for further information on weeds controlled, directions for use, restrictions and precautionary label statements. When applied as a tank-mix, consult the labels of the tank-mix partners and observe the most restrictive buffer zone of the products involved in the tank mixture.

**Weeds Controlled or Suppressed with PrePass FLEX Herbicide + Glyphosate Herbicides
(present as isopropylamine salt, diammonium salt, trimethylsulfonium salt, potassium salt or dimethylamine salt)**

Rate of Glyphosate [†]	Weeds Controlled or Suppressed		
<p>For an application rate of 450 g ae/ha apply: 0.90 L/ha (500 g ae/L)</p> <p>0.94 L/ha (480 g ae/L)</p> <p>1.0 L/ha (450 g ae/L)</p> <p>1.25 L/ha (360 g ae/L)</p> <p>Use water volumes of 50 to 100 L/ha</p>	<p>Annual Broadleaf Weeds Controlled or Suppressed:</p>		
	buckwheat, wild canola, volunteer* chickweed, common cleavers cow cockle flax, volunteer fleabane, Canada♦♦ flixweed	narrow-leaved hawk's beard♦♦ hempnettle kochia lady's-thumb lamb's-quarters mustard, wild pigweed, redroot	ragweed, common♦♦ scentless chamomile shepherd's purse smartweed sowthistle, annual (suppression only) stinkweed thistle, Russian
	<p>Annual Grasses Controlled:</p>		
	barley, volunteer brome, downy foxtail, giant	foxtail, green oats, wild Persian darnel	wheat, volunteer
	<p>Perennial Weeds Controlled:</p>		
	dandelion (seedling, overwintered rosettes, mature plants up to 30 cm. in diameter)		
	<p>Perennial Weeds Suppressed:</p>		
	sow-thistle, perennial♦♦♦		

<p><u>For an application rate of 900-2500 g ae/ha apply:</u></p> <p>1.8 – 5.0 L/ha (500 g ae/L)</p> <p>1.9 – 5.2 L/ha (480 g ae/L)</p> <p>2.0 – 5.6 L/ha (450 g ae/L)</p> <p>2.5 – 6.9 L/ha (360 g ae/L)</p> <p>Use water volume of 100 L/ha</p>	<p>Weeds Controlled: Weed claims above plus control of annual sow-thistle</p> <p>Perennial Weeds Controlled: Canada thistle (rosette stage) quack grass</p>
<p><u>For an application rate of 1700-2500 g ae/ha apply:</u></p> <p>3.4 – 5.0 L/ha (500 g ae/L)</p> <p>3.6 – 5.2 L/ha (480 g ae/L)</p> <p>3.8 – 5.6 L/ha (450 g ae/L)</p> <p>4.7 – 6.9 L/ha (360 g ae/L)</p> <p>Use water volume of 100 L/ha</p>	<p>Weeds Controlled: Weed claims above plus control of Canada thistle (bud stage or beyond)</p>

†The product application rate is dependent upon the guarantee of the product. Refer to glyphosate product label for further information on weeds controlled, directions for use, restrictions and precautionary label statements.

*Including all herbicide tolerant canola varieties

**Less than 8 cm in height

***Applications made at advanced stages will reduce effectiveness

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the required amount of PrePass FLEX Herbicide, continue agitation.
4. Add the required amount of glyphosate, continue agitation.
5. Fill the sprayer tank with sufficient water to spray 50 - 100 L of spray mixture per hectare.

Application Timing

Apply to actively growing weeds in the 2-4 leaf stage, except where noted above. Extreme growing conditions such as drought or near freezing temperature prior to, at or following time of application may reduce weed control. Only weeds which are emerged at the time of application will be affected. If foliage is wet at the time of application, control may be decreased. Under conditions of high weed density, control may be reduced.

Pre-Seed (spring or fall)

PrePass FLEX Herbicide + glyphosate may be applied prior to seeding and no longer than 48 hours after seeding prior to any crop emergence. Fields treated with PrePass FLEX Herbicide + glyphosate may be planted to barley, oats, spring wheat (including durum), winter wheat or summerfallowed.

Chem-Fallow

May 1 to July 31: PrePass FLEX Herbicide may be applied to summerfallow fields and seeded in the fall to winter wheat and in the following spring to barley, canola, oats, peas or wheat (including durum) or summerfallowed.

Fall Application

PrePass FLEX Herbicide plus glyphosate may be applied to stubble or summerfallow fields after August 1st and prior to freeze-up and may be seeded in the fall to winter wheat and in the following spring to barley, oats or spring wheat (including durum) or summerfallowed.

IMPROVED PASTURES – PREPASS FLEX HERBICIDE ALONE

Improved Pastures containing only forage grasses.

PrePass FLEX Herbicide can be applied post emergence as a broadcast spray to control weeds in improved pastures that may eventually be rotated into annual cropland. Such pastures may contain non-native, tame or introduced forage grass species.

Do not spray improved pastures if the injury to existing legume species cannot be tolerated. PrePass FLEX Herbicide will injure or eliminate legume plants (e.g. alfalfa, clover species).

DIRECTIONS FOR USE

Apply when weeds are in the 2-4 leaf stage and actively growing. Best results are obtained from applications made to seedling weeds. Only weeds emerged at the time of treatment will be controlled. Extreme growing conditions such as drought or near freezing temperature prior to, at, and following time of application may reduce weed control. Pastures in poor condition or under stress (e.g., over-grazed, nutrient deficient, etc.) could lead to reduced weed control as a result of limited competition from the pasture grasses. Foliage that is wet at the time of application may decrease control.

Application Directions

Apply 20 grams of PrePass FLEX Herbicide per hectare in a minimum of 100 L per hectare of water. Add Agral 90 at 0.2% v/v. Apply when weeds are actively growing. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds.

Weeds Controlled or Suppressed by PrePass FLEX Herbicide Alone at 20 g/ha

Weeds Controlled:

buckwheat, wild	shepherd's-purse
canola, volunteer*	smartweed
chickweed, common	stinkweed
cleavers	mustard, wild
cow cockle	

Weeds Suppressed:

hempnettle	sowthistle, annual
narrow-leaved hawk's beard	sowthistle, perennial**
pigweed, redroot	

*Including herbicide-tolerant canola varieties except CLEARFIELD canola.

**Applications made at advanced leaf stages will reduce product effectiveness.

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the required amount of PrePass FLEX Herbicide.
4. Fill the sprayer tank with sufficient water to spray 100 L of spray mixture per hectare.
5. Add Agral 90 as the last ingredient at the rate of 0.2% v/v (2 L per 1000 L of spray volume).
6. Follow sprayer directions and precautions as outlined above, especially when applying next to sensitive crops (e.g. canola and legumes).

Follow sprayer clean-up directions.

Restrictions:

1. Livestock may be grazed on treated crops 7 days following application.
2. Do not permit lactating dairy animals to graze fields within 7 days after application.
3. Do not harvest forage or cut hay within 7 days after application.
4. Withdraw meat animals from treated fields at least 3 days before slaughter

READ THE ROTATIONAL CROPPING RESTRICTIONS ON THE FULL LABEL BEFORE USING THIS PRODUCT.

A buffer zone of 30 metres is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelter belts, woodlots, hedgerows, and shrublands. A buffer zone of 15 metres is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats including sloughs, ponds, prairie potholes, lakes, rivers, streams, wetlands and wildlife habitats at the edge of these bodies of water.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that PrePass FLEX Herbicide is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to PrePass FLEX Herbicide and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of PrePass FLEX Herbicide or other Group 2 herbicide within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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062019

Label Code: CN-31259-007-E

Replaces: CN-31259-006-E

Specimen label notes

Add alfalfa and fababeans to rotational crops

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: PREPASS™ Flex Herbicide

Issue Date: 07/06/2016

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PREPASS™ Flex Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
#2400, 215 - 2ND STREET S.W.
CALGARY AB T2P 1M4
CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 07/06/2016

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Solid

Color Tan to brown

Odor Odorless

Hazard Summary

CAUTION!!

May cause eye irritation.

Isolate area.

Toxic fumes may be released in fire situations.

Highly toxic to fish and/or other aquatic organisms.

Potential Health Effects

Ingestion: Based on physical properties, not likely to be an aspiration hazard.

Eyes: Solid or dust may cause irritation or corneal injury due to mechanical action.
May cause moderate eye irritation.
May cause slight corneal injury.

Skin: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Skin: Prolonged contact is essentially nonirritating to skin.

Inhalation: No adverse effects are anticipated from single exposure to dust.
Based on the available data, narcotic effects were not observed.
Based on the available data, respiratory irritation was not observed.

Ingestion: Very low toxicity if swallowed.
Harmful effects not anticipated from swallowing small amounts.

Chronic Exposure: For the active ingredient(s):
In animals, effects have been reported on the following organs:
Kidney.
Based on information for component(s):
In animals, effects have been reported on the following organs:
Lung.
Kidney.
Liver.
May cause abdominal discomfort or diarrhea.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent	
Florasulam	145701-23-1	25.0%	
Starch	9005-25-8	19.0%	
Kaolin	1332-58-7	>= 1.4 - <= 39.1 %	
Titanium dioxide	13463-67-7	1.1%	
Silica, crystalline (quartz)	14808-60-7	0.4%	
Methylene chloride	75-09-2	0.02%	Hazardous components
Balance	Not available	>= 15.38 - <= 53.08 %	

4. FIRST AID MEASURES

Description of first aid measures

General advice: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Hydrogen sulfide. Hydrogen fluoride. Fluorine. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, do not permit dust to accumulate. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Soak thoroughly with water to cool and prevent re-ignition. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Move container from fire area if this is possible without hazard. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Spills or discharge to natural waterways is likely to kill aquatic organisms. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing dust or mist. Wash thoroughly after handling. Use with adequate ventilation. Good housekeeping and controlling of dusts are necessary for safe handling of product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Starch	ACGIH	TWA	10 mg/m ³
	CA AB OEL	TWA	10 mg/m ³
	CA BC OEL	TWA	10 mg/m ³
	CA QC OEL	TWAEV total dust	10 mg/m ³
	CA ON OEL	TWAEV Total	10 mg/m ³
Kaolin	ACGIH	TWA Respirable fraction	2 mg/m ³
	CA AB OEL	TWA Respirable	2 mg/m ³
	CA BC OEL	TWA Respirable	2 mg/m ³
	CA QC OEL	TWAEV respirable dust	5 mg/m ³
Titanium dioxide	ACGIH	TWA	10 mg/m ³ , Titanium dioxide
	Dow IHG	TWA	2.4 mg/m ³
	CA AB OEL	TWA	10 mg/m ³
	CA BC OEL	TWA	10 mg/m ³
	CA QC OEL	TWAEV total dust	10 mg/m ³

Silica, crystalline (quartz)	ACGIH	TWA Respirable fraction	0.025 mg/m3 , Silica
	CA AB OEL	TWA Respirable particulates	0.025 mg/m3
	CA ON OEL	TWA Respirable fraction	0.1 mg/m3
	CA QC OEL	TWAEV respirable dust	0.1 mg/m3
	CA BC OEL	TWA Respirable	0.025 mg/m3 , Silica
Methylene chloride	ACGIH	TWA	50 ppm
	ACGIH	TWA	BEI
	CA AB OEL	TWA	174 mg/m3 50 ppm
	CA BC OEL	TWA	25 ppm
	CA ON OEL	TWAEV	175 mg/m3 50 ppm
	CA QC OEL	TWAEV	174 mg/m3 50 ppm
	ACGIH	TWA	BEI

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

Other protection: No precautions other than clean body-covering clothing should be needed.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, in dusty atmospheres, use an approved particulate respirator.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Solid
Color	Tan to brown
Odor	Odorless
Odor Threshold	Odorless
pH	5.0 1% pH Electrode (1% dispersion)

Melting point/range	No test data available
Freezing point	Not applicable
Boiling point (760 mmHg)	Not applicable
Flash point	closed cup Not applicable
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	The product is not flammable. <i>Flammability (solids)</i>
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	Not applicable
Relative Density (water = 1)	Not applicable
Water solubility	Dispersible
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	381 °C Ramped Temperature
Decomposition temperature	No test data available
Kinematic Viscosity	Not applicable
Explosive properties	No data available
Oxidizing properties	No
Solid Density	0.90 g/cm ³
Bulk density	0.82 kg/m ³ <i>Tapped Volumetric</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Product decomposes above melting temperature. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid.

Incompatible materials: None known.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen fluoride. Hydrogen sulfide.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:

LD50, Rat, female, > 5,000 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, Rat, male and female, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.

As product:

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.36 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

Solid or dust may cause irritation or corneal injury due to mechanical action.

May cause moderate eye irritation.

May cause slight corneal injury.

Sensitization

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):

In animals, effects have been reported on the following organs:

Kidney.

Based on information for component(s):

In animals, effects have been reported on the following organs:

Lung.

May cause abdominal discomfort or diarrhea.

Carcinogenicity

For the active ingredient(s): Did not cause cancer in laboratory animals. A risk assessment has been conducted for this product and has shown, that under normal handling, the minor components will not pose a hazard.

Teratogenicity

For the active ingredient(s): Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

For the minor component(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity

In animal studies, active ingredient did not interfere with reproduction.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

For the minor component(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

Carcinogenicity

Component	List	Classification
Titanium dioxide	IARC	Group 2B: Possibly carcinogenic to humans
Silica, crystalline (quartz)	IARC ACGIH	Group 1: Carcinogenic to humans A2: Suspected human carcinogen
Methylene chloride	IARC US NTP OSHA CARC ACGIH	Group 2A: Probably carcinogenic to humans Reasonably anticipated to be a human carcinogen OSHA specifically regulated carcinogen A3: Confirmed animal carcinogen with unknown relevance to humans.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity**Acute toxicity to fish**

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, 65.5 mg/l

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, > 100 mg/l

Acute toxicity to algae/aquatic plants

EC50, *Lemna gibba*, 7 d, Growth rate inhibition, 0.0055 mg/l

EC50, Algae, 72 Hour, 0.017 mg/l

Toxicity to Above Ground Organisms

oral LD50, Apis mellifera (bees), 48 Hour, > 209.6micrograms/bee

contact LD50, Apis mellifera (bees), 48 Hour, > 200micrograms/bee

Persistence and degradability**Florasulam**

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

Biodegradation: 2 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 0.85 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
	0.012 mg/mg

Stability in Water (1/2-life)

, > 30 d

Photodegradation

Atmospheric half-life: 1.82 Hour

Method: Estimated.

Starch

Biodegradability: Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Kaolin

Biodegradability: Biodegradation is not applicable.

Titanium dioxide

Biodegradability: Biodegradation is not applicable.

Silica, crystalline (quartz)

Biodegradability: Biodegradation is not applicable.

Methylene chloride

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 68 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

10-day Window: Not applicable

Biodegradation: 66 %

Exposure time: 50 Hour
Method: Simulation study

Theoretical Oxygen Demand: 0.38 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 79 - 110 d
Method: Estimated.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Florasulam

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -1.22
Bioconcentration factor (BCF): 0.8 Fish 28 d Measured

Starch

Bioaccumulation: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

Titanium dioxide

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Silica, crystalline (quartz)

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Methylene chloride

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 1.25 at 20 °C Measured
Bioconcentration factor (BCF): 2 - 40 Fish Measured

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

Florasulam

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 4 - 54

Starch

No relevant data found.

Silica, crystalline (quartz)

No relevant data found.

Methylene chloride

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 46.8 Estimated.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION**TDG**

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Florasulam)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Florasulam

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(Florasulam)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	Florasulam
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Not applicable

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.(Florasulam)
UN number	UN 3077
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act (PCPA) Registration Number: 31259

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	1	0

Revision

Identification Number: 101189420 / A215 / Issue Date: 07/06/2016 / Version: 1.0

DAS Code: GF-1352

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
BEI	Biological Exposure Indices
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA ON OEL	Canada. Ontario OELs
CA QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Dow IHG	Dow Industrial Hygiene Guideline
TWA	Time weighted average
TWAEV	time-weighted average exposure value

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that

his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: PRESTIGE™ XC A Herbicide

Issue Date: 07/19/2016

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PRESTIGE™ XC A Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
#2400, 215 - 2ND STREET S.W.
CALGARY AB T2P 1M4
CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 07/19/2016

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid

Color Yellow to brown

Odor Spicy

Hazard Summary

WARNING!!

May cause allergic skin reaction.

May cause eye irritation.

Isolate area.

Toxic fumes may be released in fire situations.

Potential Health Effects

Eyes: May cause moderate eye irritation.
May cause slight corneal injury.

Skin: Has demonstrated the potential for contact allergy in mice.
Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Brief contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

Inhalation: No adverse effects are anticipated from single exposure to mist.
Mist may cause irritation of upper respiratory tract (nose and throat).

Ingestion: Very low toxicity if swallowed.
Harmful effects not anticipated from swallowing small amounts.

Chronic Exposure: For the active ingredient(s):
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Based on information for component(s):
In animals, effects have been reported on the following organs:
Kidney.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent
Fluroxypyr 1-methylheptyl ester	81406-37-3	45.52%
Heavy aromatic naphtha	64742-94-5	>= 0.7 - <= 2.6 %
N-Methyl-2-pyrrolidone	872-50-4	0.1%
Balance	Not available	>= 51.8 - <= 53.7 %

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment. Skin contact may aggravate preexisting dermatitis.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Avoid prolonged or repeated contact with skin. Avoid contact with eyes, skin, and clothing. Do not swallow. Avoid breathing vapor or mist. Wash thoroughly after handling. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Fluroxypyr 1-methylheptyl ester	Dow IHG	TWA	10 mg/m ³
Heavy aromatic naphtha	Dow IHG	TWA	100 mg/m ³
	Dow IHG	STEL	300 mg/m ³
N-Methyl-2-pyrrolidone	US WEEL	TWA	10 ppm
	US WEEL	TWA	SKIN
	CA ON OEL	TWA	400 mg/m ³
	US WEEL	TWA	SKIN

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid
Color	Yellow to brown
Odor	Spicy
Odor Threshold	No test data available
pH	4.58 1% ASTM E70
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	closed cup > 100 °C ASTM D3278
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	1.05
Water solubility	emulsifiable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	358 °C EC Method A15
Decomposition temperature	No test data available
Dynamic Viscosity	28.2 mPa.s at 40 °C OECD 114
Kinematic Viscosity	No test data available

Explosive properties	No EEC A14
Oxidizing properties	No data available
Liquid Density	1.05 g/cm ³ at 20 °C OECD 109
Molecular weight	No test data available
Surface tension	32 mN/m at 25 °C EC Method A5

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Unstable at elevated temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: None known.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrogen chloride. Hydrogen fluoride. Nitrogen oxides. Toxic gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:

LD50, Rat, female, > 5,000 mg/kg No deaths occurred at this concentration.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, Rat, male and female, > 5,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Mist may cause irritation of upper respiratory tract (nose and throat).

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.50 mg/l

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

May cause drying and flaking of the skin.

Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause moderate eye irritation.
May cause slight corneal injury.

Sensitization

As product:
Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

For the major component(s):
For similar material(s):
In animals, effects have been reported on the following organs:
Kidney.

For the minor component(s):
In animals, effects have been reported on the following organs:
Lung.
Gastrointestinal tract.
Thyroid.
Urinary tract.

Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Carcinogenicity

For similar active ingredient(s). Fluroxypyr-meptyl. Did not cause cancer in laboratory animals.

Teratogenicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity

For the active ingredient(s): In animal studies, did not interfere with reproduction.

Mutagenicity

As product: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 14.3 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 20 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, 9.6 mg/l, OECD Test Guideline 201

ErC50, Myriophyllum spicatum, static test, 14 d, 0.178 mg/l, OECD Test Guideline 201

NOEC, Myriophyllum spicatum, static test, 14 d, 0.0152 mg/l, OECD Test Guideline 201

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, Colinus virginianus (Bobwhite quail), > 2,250 mg/kg

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, survival, > 1,000 mg/kg

Persistence and degradability

Fluroxypyr 1-methylheptyl ester

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

Biodegradation: 32 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 2.2 mg/mg

Stability in Water (1/2-life)

Hydrolysis, half-life, 454 d

Heavy aromatic naphtha

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

N-Methyl-2-pyrrolidone

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 91 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

10-day Window: Not applicable

Biodegradation: 73 %

Exposure time: 28 d

Method: OECD Test Guideline 301C or Equivalent

10-day Window: Not applicable

Biodegradation: > 90 %

Exposure time: 8 d

Method: OECD Test Guideline 302B or Equivalent

Theoretical Oxygen Demand: 2.58 mg/mg

Photodegradation**Test Type:** Half-life (indirect photolysis)**Sensitizer:** OH radicals**Atmospheric half-life:** 0.486 d**Method:** Estimated.**Balance****Biodegradability:** No relevant data found.**Bioaccumulative potential****Fluroxypyr 1-methylheptyl ester****Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** 5.04 Measured**Bioconcentration factor (BCF):** 26 Oncorhynchus mykiss (rainbow trout) Measured**Heavy aromatic naphtha****Bioaccumulation:** For similar material(s): Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).**N-Methyl-2-pyrrolidone****Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** -0.38 Measured**Balance****Bioaccumulation:** No relevant data found.**Mobility in soil****Fluroxypyr 1-methylheptyl ester**

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient (Koc): 6200 - 43000**Heavy aromatic naphtha**

No relevant data found.

N-Methyl-2-pyrrolidone

Potential for mobility in soil is very high (Koc between 0 and 50).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient (Koc): 21 Estimated.**Balance**

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Fluroxypyr)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Fluroxypyr

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Fluroxypyr)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Fluroxypyr
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Fluroxypyr)
UN number	UN 3082
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act (PCPA) Registration Number: 29462

16. OTHER INFORMATION

Hazard Rating System**NFPA**

	Health	Fire	Reactivity
 	1	1	1

Revision

Identification Number: 101188173 / A215 / Issue Date: 07/19/2016 / Version: 6.0

DAS Code: GF-1784

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

CA ON OEL	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
Dow IHG	Dow Industrial Hygiene Guideline
SKIN	Absorbed via skin
STEL	Short term exposure limit
TWA	Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



Prestige™ XC Herbicide

GROUP	4	HERBICIDE
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Prestige XC Herbicide provides control of a wide spectrum of broadleaved weeds including hard-to-control weeds such as cleavers, kochia, wild buckwheat, perennial sow thistle and Canada thistle, and suppression of hemp-nettle and common chickweed, in spring wheat, durum wheat, winter wheat, spring barley and oats.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

This co-package contains

Prestige XC A Herbicide
REGISTRATION NO. 29462 PEST CONTROL PRODUCTS ACT
ACTIVE INGREDIENT: fluroxypyr, present as 1-methylheptyl ester 333 g a.e./L
Emulsifiable Concentrate

Prestige XC B Herbicide
REGISTRATION NO. 29465 PEST CONTROL PRODUCTS ACT
ACTIVE INGREDIENT: clopyralid, present as acid 50 g a.e./L
MCPA, present as 2-ethylhexyl ester 280 g a.e./L
Emulsifiable Concentrate



**WARNING - EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: Prestige XC A Herbicide 1L - Bulk
Prestige XC B Herbicide 1.5 L – 450 L

Dow AgroSciences Canada Inc.
2400, 215 – 2nd Street S.W.
Calgary, Alberta
T2P 1M4
1-800-667-3852

®™ Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

DANGER - CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY. DO NOT GET IN EYES.

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH THE SKIN

CAUSES SKIN IRRITATION

Prestige XC B Herbicide contains an ingredient that is rapidly absorbed through the skin and respiratory tract.

DO NOT get in eyes. Avoid contact with skin and clothing. Avoid breathing spray mist or vapour.

Reentry is not permitted until 12 hours after application for all agricultural scenarios.

Do not use in residential areas, which are defined as sites where bystanders may be present during or after spraying, including homes, schools, parks, playgrounds, playing fields and public buildings.

PROTECTIVE CLOTHING AND EQUIPMENT

Wear a hat, coveralls over a long-sleeved shirt and long pants, socks, rubber boots and chemical-resistant gloves during spraying or application. In addition, wear goggles or face shield during mixing, loading, repair and clean-up or when handling the concentrate. Applicators using a closed cab are not required to wear chemical-resistant gloves.

OPERATOR USE PRECAUTIONS

Wear freshly laundered clothing and clean protective equipment daily. At completion of spraying or end of the day take a shower immediately. Wash thoroughly with soap and water before eating, drinking, smoking or using the toilet. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse. If herbicide penetrates clothing, remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Do not use or store near heat or open flame. Use only in a well ventilated area.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

THIS PRODUCT CONTAINS A PETROLEUM DISTILLATE. Vomiting may cause aspiration pneumonia. The decision of whether to induce vomiting or not should be made by the attending physician. If lavage is performed, suggest endotracheal and/or oesophageal control. Danger from lung aspiration of petroleum based solvents must be weighed against toxicity when considering emptying the stomach. No specific antidote. Employ supportive care. Treatment should be based on the judgment of the physician in response to reactions of the patient. High concentrations of MCPA may cause severe irritation to the eyes. Symptoms of overexposure to MCPA could include slurred speech, twitching, jerking and spasms, drooling, low blood pressure and unconsciousness.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, fertilizers, drugs or clothing.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE. This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store in original tightly closed containers in a secure, dry heated storage. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. Do not contaminate food, feedstuffs or domestic water supplies. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Prestige XC Herbicide is a selective postemergence herbicide for the control of broadleaved weeds in spring wheat, durum wheat, winter wheat, spring barley and oats (not underseeded to legumes). Prestige XC Herbicide provides control of hard-to-kill broadleaved weeds such as cleavers, kochia, wild buckwheat, Canada thistle and perennial sow thistle, and suppression of common chickweed and hemp-nettle. The components of Prestige XC Herbicide move within the plant to control exposed and underground plant tissues. It mimics naturally occurring plant hormones which control weeds by disrupting normal plant growth patterns. Symptoms of effect include epinasty (twisting of the stems) and swollen nodes.

GENERAL USE PRECAUTIONS

- READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE.
- As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.
- DO NOT APPLY TO CROPS UNDERSEEDED WITH LEGUMES.
- Do not use in greenhouses.
- Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

To minimize spray drift to non-target areas:

1. Minimize drift by using sufficient spray volume to ensure coverage with ASAE coarse droplet size spray.
2. Keep ground-driven spray booms as low as possible and not exceeding 60 cm above the target surface.
3. Spray when wind is less than 8 km/hr.

Do not spray in dead calm near sensitive plants. The “cloud” of suspended droplets may drift onto sensitive plants when the wind comes up. Spray only when wind is blowing away from a sensitive crop, shelterbelt or garden.

Extreme growing conditions such as:

- Drought or near freezing temperatures prior to, at and following time of application may reduce weed control and increase the risk of crop injury at all stages of growth.
- Wet foliage at the time of application may result in reduced weed control.
- Over-application may result in crop injury.
- Make only 1 application per year.
- Do not apply through any type of irrigation system.

Sprayer Clean-up

Sprayers used to apply Prestige XC Herbicide should not be used to apply other pesticides to sensitive crops without a thorough cleaning. Do not contaminate irrigation or drinking water, lakes, streams or ponds when cleaning the sprayer. Spray equipment should be cleaned after use by the following procedure:

1. Drain the sprayer tank.
2. Hose down the interior surfaces of the tank. Flush tank, hoses, boom and nozzles with clean water for 10 minutes. Fill the tank with water and recirculate for 15 minutes. Spray part of the mixture through the hoses, boom and nozzles and drain the tank.
3. Remove the nozzles and screens and clean them separately.
4. If the spray equipment will be used on other crops other than cereal crops, repeat 1 and 2 again and thoroughly wash the spray mixture from the outside of the spray tank and the boom.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Field sprayer application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing or rotorspan.

SENSITIVE PLANTS

Do not apply Prestige XC Herbicide directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers, fruit, and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

ROTATIONAL CROP RESTRICTIONS

Fields previously treated with Prestige XC Herbicide can be seeded to wheat, barley, oats and rye (not under-seeded to forage legumes, clover or alfalfa), canola, corn, field peas, flax, mustard, or sugar beets can be summer-fallowed. Seed only those crops listed above in the year following treatment. Do not seed to field peas for at least 10 months following treatment. Very dry soil conditions following application can result in a risk of injury to field peas grown in rotation. If severe drought conditions are experienced during the months of June to August inclusive in the year of application, delay seeding field peas an additional 12 months (total 22 months following application). Contact your local Dow AgroSciences Canada representative or retailer for more information before seeding field peas following drought conditions in the previous year.

PRE-HARVEST/GRAZING INTERVALS

- Do not cut or graze treated fields of wheat, barley or oats within 7 days after application.
- Do not harvest wheat, barley or oats within 60 days after application, or within 7 days after application when harvesting for forage.
- Withdraw meat animals from treated fields at least 3 days before slaughter.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc at 1-800-667-3852 or www.dowagro.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

DIRECTIONS FOR USE

Prestige XC Herbicide, applied with ground or aerial application equipment (see Application Directions section), will provide wide spectrum broadleaved weed control in spring wheat, durum wheat, winter wheat, spring barley and oats.

DO NOT APPLY TO CROPS UNDERSEEDED WITH LEGUMES.

I. Low Rate: To control the following weeds apply a uniform spray containing 0.31 L/ha of Prestige XC A and 1.5 L/ha of Prestige XC B.

Weeds Controlled

buckwheat, wild (1-8 leaf)	plantain**
burdock	prickly lettuce
cleavers (1-8 whorls)	ragweeds
Canada thistle (low infestations)	shepherd's purse
cocklebur	stinkweed
field horsetail**	stork's-bill (1-8 leaf)
flax, volunteer (1-12 cm)	sunflower, annual
flixweed (spring seedling 2-4 lf)	sunflower, volunteer
kochia ***	vetch
lamb's-quarters	wild radish
mustard, wild	

II. High Rate: To control the above weeds plus the following weeds apply a uniform spray containing 0.41 L/ha of Prestige XC A and 2.0 L/ha of Prestige XC B.

Weeds Controlled

buckwheat, tartary	mallow, round-leaved (1-6 leaf)
Canada thistle * (medium to high infestations)	pigweed, red-root
canola, volunteer	pigweed, Russian
chickweed, common (up to 6 cm) ***	scentsless chamomile
dandelion (spring rosettes only)	smartweed
groundsel, common	sowthistle, annual
hemp-nettle (2-6 leaf)	sowthistle, perennial *
	stork's-bill (1-8 leaf)

* Season long control, with some regrowth in the fall (top growth control).

** Top growth control only

*** Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.

The active ingredients in this tank mixture will only control chickweed that is emerged at time of application. Chickweed plants which emerge after application will not be controlled. To improve the reduction in chickweed population at the end of season, delay the timing of application as late as possible to when the majority of chickweed plants have emerged. The reduction in chickweed population will also be improved in crops which are more competitive and which allow limited light penetration.

NOTE: Prestige XC Herbicide activity is influenced by weather conditions. Optimum activity requires active crop and weed growth. The temperature range for optimum activity is 12°C to 24°C. Reduced activity will occur when temperatures are below 8°C or above 27°C. Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions, e.g. drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist.

Timing of Application

Apply postemergence when weeds are in the seedling stage (2-4 leaf) and when spring wheat, durum wheat, spring barley and oats are in the 3-leaf to just before the flag leaf emergence stage. Apply to winter wheat in the spring from the 3 tiller stage to just before the flag leaf stage. Do not apply later than the flag-leaf emergence stage. A maximum of 1 application per year.

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the required number of jugs of Prestige XC A.
4. Add the required number of jugs of Prestige XC B.
5. Fill the sprayer tank with sufficient water (see water volumes in Application Directions section). Maintain sufficient agitation in the spray tank during mixing and spraying to ensure a uniform spray mixture.
6. Follow sprayer directions and precautions as outlined above, especially when applying next to sensitive crops (e.g., canola and legumes).
7. Follow sprayer clean-up directions as listed.

APPLICATION DIRECTIONS (GROUND AND AERIAL APPLICATIONS)

(1) Ground Application

Using ground equipment, apply Prestige XC Herbicide alone or with tank mix partners as a broadcast treatment. Apply Prestige XC Herbicide alone at the recommended rates in a spray volume of 50-100 L water/ha. When tank mixing refer to the label of the tank mix partner label for additional instructions, water volumes, precautions and weeds controlled.

(2) Aerial Application

Do not use human flaggers.

Use Prestige XC Herbicide alone or tank mixed with a product registered for aerial application as a broadcast treatment. Apply the recommended rates of Prestige XC Herbicide and tank mix partner as indicated elsewhere on this label. Apply in a spray volume of 30-50 L water/ha. Refer to the tank mix partner label for additional instructions, precautions and weeds controlled.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate swath marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing should be laundered regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

- The interaction of many equipment-and-weather-related factors determine the potential for spray drift. Users are responsible for considering all these factors when making decisions.

The following drift management requirement must be followed to avoid off-target drift movement from aerial applications: Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

TANK MIXES WITH PRESTIGE XC HERBICIDE FOR ANNUAL GRASS CONTROL

Tank mixtures of Prestige XC Herbicide with other herbicides will provide control of additional weeds. Read all precautions, minimal interval to harvest and directions for use on the Prestige XC Herbicide and tank-mix partner labels, and follow the more stringent of the two. DO NOT USE THESE TANK MIXES ON OATS.

Herbicide Tank-mix Partner	Crops Registered	Rate of Herbicide Tank-mix Partner	Adjuvant Rate	Additional Weeds
Liquid Achieve	spring wheat, durum wheat, winter wheat, spring barley	0.5 L/ha	Turbocharge 0.5 L/100 L of spray volume (0.5% v/v)	green foxtail wild oats
Horizon Herbicide Tank Mix	spring wheat, durum wheat	230 mL/ha	Score 0.8 L/ha (0.8% v/v)	green foxtail wild oats
Assert 300 SC	spring wheat, durum wheat, spring barley	1.3 L/ha	Refer to Assert 300 SC label	wild oats (1-3 leaf)
		1.6 L/ha		wild oats (4 leaf)
Everest 70 WDG or Everest Solupak 70 DF	spring wheat, durum wheat	43 g/ha	Refer to Everest 70 WDG or Everest Solupak 70 DF label	green foxtail wild oats
Puma 120 Super	spring wheat, durum wheat, spring barley	385 mL/ha	None required	green foxtail only
		770 mL/ha		green foxtail, wild oats & barnyard grass

Tank mixes with ACHIEVE herbicides may cause temporary injury if applied before the 4-leaf stage, however, yield will not normally be affected.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the use(s) described on the Label were developed by persons other than Dow AgroSciences Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Dow AgroSciences Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Dow AgroSciences Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described on this label.

DIRECTIONS FOR USE

SEEDLING AND ESTABLISHED TALL FESCUE GROWN FOR SEED: For control of labelled weeds on seedling (4 leaf to flag leaf) or established tall fescue grown for seed. Apply one post-emergent application when weeds are at the 2-4 leaf stage. Ground application only. Do not cut treated fields for hay/forage. Do not graze treated fields.

Application rates (Apply as a tank-mix only): Apply Prestige XC A at a rate of 0.41 L/ha. Apply Prestige XC B at a rate of 2 L/ha.

Apply in a minimum spray volume of 100 L water/ha.

FOR CONTROL OF LABELLED WEEDS IN THE FOLLOWING SEEDLING AND ESTABLISHED FORAGE GRASSES GROWN FOR SEED

Creeping Red Fescue
Intermediate Wheat Grass
Crested Wheat Grass
Hybrid Brome Grass
Meadow Brome Grass
Smooth Brome Grass
Timothy

Apply one application per year in a spray volume of 100-200 L/ha to control labelled weeds in seedling (4 leaf to flag leaf) or established forage grasses. Application should be made postemergence when weeds are in the 2-4 leaf stage. Apply in a broadcast spray using a hydraulic boom ground sprayer.

Application rates (Apply as a tank-mix only): Prestige XC A: 0.41 L/ha; Prestige XC B: 2.0 L/ha.

Do not cut treated fields for hay/forage. Do not graze treated fields. Do not harvest the treated crop within 60 days of application.

LABELLED ANNUAL AND PERENNIAL BROADLEAVED WEEDS IN CANARYSEED (*Phalaris canariensis*)

For the control of labelled annual and perennial broadleaved weeds in canaryseed (*Phalaris canariensis*), apply Prestige XC A at a rate of 0.41 L/ha and Prestige XC B at a rate of 2.0 L/ha in a minimum of 100 L of water to thoroughly cover the weeds with a spray pressure of 200 to 275 kPa. Apply when weeds are in the seedling stage (2-4 leaf) and when canaryseed (*Phalaris canariensis*), is in the 3-leaf stage up to just before the flag leaf emergence stage. Apply using a ground boom sprayer or aerial sprayer, and apply only one post-emergent application per season. Do NOT apply within 60 days of harvest.

Refer to the main Prestige XC Herbicide label for additional details and instructions before using.

READ THE ROTATIONAL CROPPING RESTRICTIONS ON FULL LABEL BEFORE USING THIS PRODUCT.

BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial habitat
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Spring wheat, durum wheat, winter wheat, spring barley, seedling and established tall fescue grown for seed, seedling and established forage grasses grown for seed, canaryseed		1	0	1	1	1
Aerial sprayer	Spring wheat, durum wheat, winter wheat, spring barley, oats, canaryseed	Fixed wing	4	0	1	1	60
		Rotary wing	1	0	1	1	50

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

NOTE: Applicators may recalculate a site-specific buffer zone by combining information on current weather conditions and spray configuration for the following applications: all airblast applications, and for field and aerial applications which specify the following droplet size category wording on the product label: 'DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) [Fine or Medium or Coarse] classification.' To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Prestige XC Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Prestige XC Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Prestige XC Herbicide other Group 4 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.dowagro.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in any way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

All products listed are registered trademarks of their respective companies.

032918

Label Code: CN-29462 29465-008-E

Replaces: CN-29462 29465-007-E

Specimen label notes:

Add minor use for control of labelled weeds on Hybrid Brome Grass



Prestige™ XC Herbicide

GROUP	4	HERBICIDE
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Prestige XC Herbicide provides control of a wide spectrum of broadleaved weeds including hard-to-control weeds such as cleavers, kochia, wild buckwheat, perennial sow thistle and Canada thistle, and suppression of hemp-nettle and common chickweed, in spring wheat, durum wheat, winter wheat, spring barley and oats.

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

This co-package contains

Prestige XC A Herbicide
REGISTRATION NO. 29462 PEST CONTROL PRODUCTS ACT
ACTIVE INGREDIENT: fluroxypyr, present as 1-methylheptyl ester 333 g a.e./L
Emulsifiable Concentrate

Prestige XC B Herbicide
REGISTRATION NO. 29465 PEST CONTROL PRODUCTS ACT
ACTIVE INGREDIENT: clopyralid, present as acid 50 g a.e./L
MCPA, present as 2-ethylhexyl ester 280 g a.e./L
Emulsifiable Concentrate



**WARNING - EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: Prestige XC A Herbicide 1L - Bulk
Prestige XC B Herbicide 1.5 L – 450 L

Dow AgroSciences Canada Inc.
2400, 215 – 2nd Street S.W.
Calgary, Alberta
T2P 1M4
1-800-667-3852

®™ Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

DANGER - CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY. DO NOT GET IN EYES.

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH THE SKIN

CAUSES SKIN IRRITATION

Prestige XC B Herbicide contains an ingredient that is rapidly absorbed through the skin and respiratory tract.

DO NOT get in eyes. Avoid contact with skin and clothing. Avoid breathing spray mist or vapour.

Reentry is not permitted until 12 hours after application for all agricultural scenarios.

Do not use in residential areas, which are defined as sites where bystanders may be present during or after spraying, including homes, schools, parks, playgrounds, playing fields and public buildings.

PROTECTIVE CLOTHING AND EQUIPMENT

Wear a hat, coveralls over a long-sleeved shirt and long pants, socks, rubber boots and chemical-resistant gloves during spraying or application. In addition, wear goggles or face shield during mixing, loading, repair and clean-up or when handling the concentrate. Applicators using a closed cab are not required to wear chemical-resistant gloves.

OPERATOR USE PRECAUTIONS

Wear freshly laundered clothing and clean protective equipment daily. At completion of spraying or end of the day take a shower immediately. Wash thoroughly with soap and water before eating, drinking, smoking or using the toilet. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse. If herbicide penetrates clothing, remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Do not use or store near heat or open flame. Use only in a well ventilated area.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

THIS PRODUCT CONTAINS A PETROLEUM DISTILLATE. Vomiting may cause aspiration pneumonia. The decision of whether to induce vomiting or not should be made by the attending physician. If lavage is performed, suggest endotracheal and/or oesophageal control. Danger from lung aspiration of petroleum based solvents must be weighed against toxicity when considering emptying the stomach. No specific antidote. Employ supportive care. Treatment should be based on the judgment of the physician in response to reactions of the patient. High concentrations of MCPA may cause severe irritation to the eyes. Symptoms of overexposure to MCPA could include slurred speech, twitching, jerking and spasms, drooling, low blood pressure and unconsciousness.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, fertilizers, drugs or clothing.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE. This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store in original tightly closed containers in a secure, dry heated storage. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. Do not contaminate food, feedstuffs or domestic water supplies. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Prestige XC Herbicide is a selective postemergence herbicide for the control of broadleaved weeds in spring wheat, durum wheat, winter wheat, spring barley and oats (not underseeded to legumes). Prestige XC Herbicide provides control of hard-to-kill broadleaved weeds such as cleavers, kochia, wild buckwheat, Canada thistle and perennial sow thistle, and suppression of common chickweed and hemp-nettle. The components of Prestige XC Herbicide move within the plant to control exposed and underground plant tissues. It mimics naturally occurring plant hormones which control weeds by disrupting normal plant growth patterns. Symptoms of effect include epinasty (twisting of the stems) and swollen nodes.

GENERAL USE PRECAUTIONS

- READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE.
- As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.
- DO NOT APPLY TO CROPS UNDERSEEDED WITH LEGUMES.
- Do not use in greenhouses.
- Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

To minimize spray drift to non-target areas:

1. Minimize drift by using sufficient spray volume to ensure coverage with ASAE coarse droplet size spray.
2. Keep ground-driven spray booms as low as possible and not exceeding 60 cm above the target surface.
3. Spray when wind is less than 8 km/hr.

Do not spray in dead calm near sensitive plants. The “cloud” of suspended droplets may drift onto sensitive plants when the wind comes up. Spray only when wind is blowing away from a sensitive crop, shelterbelt or garden.

Extreme growing conditions such as:

- Drought or near freezing temperatures prior to, at and following time of application may reduce weed control and increase the risk of crop injury at all stages of growth.
- Wet foliage at the time of application may result in reduced weed control.
- Over-application may result in crop injury.
- Make only 1 application per year.
- Do not apply through any type of irrigation system.

Sprayer Clean-up

Sprayers used to apply Prestige XC Herbicide should not be used to apply other pesticides to sensitive crops without a thorough cleaning. Do not contaminate irrigation or drinking water, lakes, streams or ponds when cleaning the sprayer. Spray equipment should be cleaned after use by the following procedure:

1. Drain the sprayer tank.
2. Hose down the interior surfaces of the tank. Flush tank, hoses, boom and nozzles with clean water for 10 minutes. Fill the tank with water and recirculate for 15 minutes. Spray part of the mixture through the hoses, boom and nozzles and drain the tank.
3. Remove the nozzles and screens and clean them separately.
4. If the spray equipment will be used on other crops other than cereal crops, repeat 1 and 2 again and thoroughly wash the spray mixture from the outside of the spray tank and the boom.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Field sprayer application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply when wind speed is greater than 16 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wing or rotorspan.

SENSITIVE PLANTS

Do not apply Prestige XC Herbicide directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers, fruit, and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

ROTATIONAL CROP RESTRICTIONS

Fields previously treated with Prestige XC Herbicide can be seeded to wheat, barley, oats and rye (not under-seeded to forage legumes, clover or alfalfa), canola, corn, field peas, flax, mustard, or sugar beets can be summer-fallowed. Seed only those crops listed above in the year following treatment. Do not seed to field peas for at least 10 months following treatment. Very dry soil conditions following application can result in a risk of injury to field peas grown in rotation. If severe drought conditions are experienced during the months of June to August inclusive in the year of application, delay seeding field peas an additional 12 months (total 22 months following application). Contact your local Dow AgroSciences Canada representative or retailer for more information before seeding field peas following drought conditions in the previous year.

PRE-HARVEST/GRAZING INTERVALS

- Do not cut or graze treated fields of wheat, barley or oats within 7 days after application.
- Do not harvest wheat, barley or oats within 60 days after application, or within 7 days after application when harvesting for forage.
- Withdraw meat animals from treated fields at least 3 days before slaughter.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc at 1-800-667-3852 or www.dowagro.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

DIRECTIONS FOR USE

Prestige XC Herbicide, applied with ground or aerial application equipment (see Application Directions section), will provide wide spectrum broadleaved weed control in spring wheat, durum wheat, winter wheat, spring barley and oats.

DO NOT APPLY TO CROPS UNDERSEEDED WITH LEGUMES.

I. Low Rate: To control the following weeds apply a uniform spray containing 0.31 L/ha of Prestige XC A and 1.5 L/ha of Prestige XC B.

Weeds Controlled

buckwheat, wild (1-8 leaf)	plantain**
burdock	prickly lettuce
cleavers (1-8 whorls)	ragweeds
Canada thistle (low infestations)	shepherd's purse
cocklebur	stinkweed
field horsetail**	stork's-bill (1-8 leaf)
flax, volunteer (1-12 cm)	sunflower, annual
flixweed (spring seedling 2-4 lf)	sunflower, volunteer
kochia ***	vetch
lamb's-quarters	wild radish
mustard, wild	

II. High Rate: To control the above weeds plus the following weeds apply a uniform spray containing 0.41 L/ha of Prestige XC A and 2.0 L/ha of Prestige XC B.

Weeds Controlled

buckwheat, tartary	mallow, round-leaved (1-6 leaf)
Canada thistle * (medium to high infestations)	pigweed, red-root
canola, volunteer	pigweed, Russian
chickweed, common (up to 6 cm) ***	scentsless chamomile
dandelion (spring rosettes only)	smartweed
groundsel, common	sowthistle, annual
hemp-nettle (2-6 leaf)	sowthistle, perennial *
	stork's-bill (1-8 leaf)

* Season long control, with some regrowth in the fall (top growth control).

** Top growth control only

*** Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.

The active ingredients in this tank mixture will only control chickweed that is emerged at time of application. Chickweed plants which emerge after application will not be controlled. To improve the reduction in chickweed population at the end of season, delay the timing of application as late as possible to when the majority of chickweed plants have emerged. The reduction in chickweed population will also be improved in crops which are more competitive and which allow limited light penetration.

NOTE: Prestige XC Herbicide activity is influenced by weather conditions. Optimum activity requires active crop and weed growth. The temperature range for optimum activity is 12°C to 24°C. Reduced activity will occur when temperatures are below 8°C or above 27°C. Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions, e.g. drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist.

Timing of Application

Apply postemergence when weeds are in the seedling stage (2-4 leaf) and when spring wheat, durum wheat, spring barley and oats are in the 3-leaf to just before the flag leaf emergence stage. Apply to winter wheat in the spring from the 3 tiller stage to just before the flag leaf stage. Do not apply later than the flag-leaf emergence stage. A maximum of 1 application per year.

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the required number of jugs of Prestige XC A.
4. Add the required number of jugs of Prestige XC B.
5. Fill the sprayer tank with sufficient water (see water volumes in Application Directions section). Maintain sufficient agitation in the spray tank during mixing and spraying to ensure a uniform spray mixture.
6. Follow sprayer directions and precautions as outlined above, especially when applying next to sensitive crops (e.g., canola and legumes).
7. Follow sprayer clean-up directions as listed.

APPLICATION DIRECTIONS (GROUND AND AERIAL APPLICATIONS)

(1) Ground Application

Using ground equipment, apply Prestige XC Herbicide alone or with tank mix partners as a broadcast treatment. Apply Prestige XC Herbicide alone at the recommended rates in a spray volume of 50-100 L water/ha. When tank mixing refer to the label of the tank mix partner label for additional instructions, water volumes, precautions and weeds controlled.

(2) Aerial Application

Do not use human flaggers.

Use Prestige XC Herbicide alone or tank mixed with a product registered for aerial application as a broadcast treatment. Apply the recommended rates of Prestige XC Herbicide and tank mix partner as indicated elsewhere on this label. Apply in a spray volume of 30-50 L water/ha. Refer to the tank mix partner label for additional instructions, precautions and weeds controlled.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate swath marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing should be laundered regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

- The interaction of many equipment-and-weather-related factors determine the potential for spray drift. Users are responsible for considering all these factors when making decisions.

The following drift management requirement must be followed to avoid off-target drift movement from aerial applications: Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

TANK MIXES WITH PRESTIGE XC HERBICIDE FOR ANNUAL GRASS CONTROL

Tank mixtures of Prestige XC Herbicide with other herbicides will provide control of additional weeds. Read all precautions, minimal interval to harvest and directions for use on the Prestige XC Herbicide and tank-mix partner labels, and follow the more stringent of the two. DO NOT USE THESE TANK MIXES ON OATS.

Herbicide Tank-mix Partner	Crops Registered	Rate of Herbicide Tank-mix Partner	Adjuvant Rate	Additional Weeds
Liquid Achieve	spring wheat, durum wheat, winter wheat, spring barley	0.5 L/ha	Turbocharge 0.5 L/100 L of spray volume (0.5% v/v)	green foxtail wild oats
Horizon Herbicide Tank Mix	spring wheat, durum wheat	230 mL/ha	Score 0.8 L/ha (0.8% v/v)	green foxtail wild oats
Assert 300 SC	spring wheat, durum wheat, spring barley	1.3 L/ha	Refer to Assert 300 SC label	wild oats (1-3 leaf)
		1.6 L/ha		wild oats (4 leaf)
Everest 70 WDG or Everest Solupak 70 DF	spring wheat, durum wheat	43 g/ha	Refer to Everest 70 WDG or Everest Solupak 70 DF label	green foxtail wild oats
Puma 120 Super	spring wheat, durum wheat, spring barley	385 mL/ha	None required	green foxtail only
		770 mL/ha		green foxtail, wild oats & barnyard grass

Tank mixes with ACHIEVE herbicides may cause temporary injury if applied before the 4-leaf stage, however, yield will not normally be affected.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the use(s) described on the Label were developed by persons other than Dow AgroSciences Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Dow AgroSciences Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Dow AgroSciences Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described on this label.

DIRECTIONS FOR USE

SEEDLING AND ESTABLISHED TALL FESCUE GROWN FOR SEED: For control of labelled weeds on seedling (4 leaf to flag leaf) or established tall fescue grown for seed. Apply one post-emergent application when weeds are at the 2-4 leaf stage. Ground application only. Do not cut treated fields for hay/forage. Do not graze treated fields.

Application rates (Apply as a tank-mix only): Apply Prestige XC A at a rate of 0.41 L/ha. Apply Prestige XC B at a rate of 2 L/ha.

Apply in a minimum spray volume of 100 L water/ha.

FOR CONTROL OF LABELLED WEEDS IN THE FOLLOWING SEEDLING AND ESTABLISHED FORAGE GRASSES GROWN FOR SEED

Creeping Red Fescue
Intermediate Wheat Grass
Crested Wheat Grass
Hybrid Brome Grass
Meadow Brome Grass
Smooth Brome Grass
Timothy

Apply one application per year in a spray volume of 100-200 L/ha to control labelled weeds in seedling (4 leaf to flag leaf) or established forage grasses. Application should be made postemergence when weeds are in the 2-4 leaf stage. Apply in a broadcast spray using a hydraulic boom ground sprayer.

Application rates (Apply as a tank-mix only): Prestige XC A: 0.41 L/ha; Prestige XC B: 2.0 L/ha.

Do not cut treated fields for hay/forage. Do not graze treated fields. Do not harvest the treated crop within 60 days of application.

LABELLED ANNUAL AND PERENNIAL BROADLEAVED WEEDS IN CANARYSEED (*Phalaris canariensis*)

For the control of labelled annual and perennial broadleaved weeds in canaryseed (*Phalaris canariensis*), apply Prestige XC A at a rate of 0.41 L/ha and Prestige XC B at a rate of 2.0 L/ha in a minimum of 100 L of water to thoroughly cover the weeds with a spray pressure of 200 to 275 kPa. Apply when weeds are in the seedling stage (2-4 leaf) and when canaryseed (*Phalaris canariensis*), is in the 3-leaf stage up to just before the flag leaf emergence stage. Apply using a ground boom sprayer or aerial sprayer, and apply only one post-emergent application per season. Do NOT apply within 60 days of harvest.

Refer to the main Prestige XC Herbicide label for additional details and instructions before using.

READ THE ROTATIONAL CROPPING RESTRICTIONS ON FULL LABEL BEFORE USING THIS PRODUCT.

BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial habitat
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Spring wheat, durum wheat, winter wheat, spring barley, seedling and established tall fescue grown for seed, seedling and established forage grasses grown for seed, canaryseed		1	0	1	1	1
Aerial sprayer	Spring wheat, durum wheat, winter wheat, spring barley, oats, canaryseed	Fixed wing	4	0	1	1	60
		Rotary wing	1	0	1	1	50

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

NOTE: Applicators may recalculate a site-specific buffer zone by combining information on current weather conditions and spray configuration for the following applications: all airblast applications, and for field and aerial applications which specify the following droplet size category wording on the product label: 'DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) [Fine or Medium or Coarse] classification.' To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Prestige XC Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Prestige XC Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Prestige XC Herbicide other Group 4 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.dowagro.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in any way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

All products listed are registered trademarks of their respective companies.

032918

Label Code: CN-29462 29465-008-E

Replaces: CN-29462 29465-007-E

Specimen label notes:

Add minor use for control of labelled weeds on Hybrid Brome Grass

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

DANGER

CORROSIVE TO THE EYE

SEVERELY IRRITATING TO THE SKIN

DO NOT GET IN EYES

DO NOT GET ON SKIN

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH THE SKIN

Prestige XL Herbicide contains an ingredient that is rapidly absorbed through the skin and respiratory tract.

DO NOT get in eyes. Avoid contact with skin and clothing. Avoid breathing spray mist or vapour.

Reentry is not permitted until 12 hours after application for all agricultural scenarios.

Do not use in residential areas, which are defined as sites where bystanders may be present during or after spraying, including homes, schools, parks, playgrounds, playing fields and public buildings.

PROTECTIVE CLOTHING AND EQUIPMENT

Wear a hat, coveralls over a long-sleeved shirt and long pants, socks, rubber boots and chemical-resistant gloves during spraying or application. In addition, wear goggles or face shield during mixing, loading, repair and clean-up or when handling the concentrate. Applicators using a closed cab are not required to wear chemical-resistant gloves.

OPERATOR USE PRECAUTIONS

Wear freshly laundered clothing and clean protective equipment daily. At completion of spraying or end of the day take a shower immediately. Wash thoroughly with soap and water before eating, drinking, smoking or using the toilet. Remove contaminated clothing at the end of the work session and store and wash separately from household laundry using detergents and hot water before reuse. If herbicide penetrates clothing, remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Do not use or store near heat or open flame. Use only in a well ventilated area.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

THIS PRODUCT CONTAINS A PETROLEUM DISTILLATE. Vomiting may cause aspiration pneumonia. The decision of whether to induce vomiting or not should be made by the attending physician. If lavage is performed, suggest endotracheal and/or oesophageal control. Danger from lung aspiration of petroleum based solvents must be weighed against toxicity when considering emptying the stomach. No specific antidote. Employ supportive care. Treatment should be based on the judgment of the physician in response to reactions of the patient. High concentrations of MCPA may cause severe irritation to the eyes. Symptoms of overexposure to MCPA could include slurred speech, twitching, jerking and spasms, drooling, low blood pressure and unconsciousness.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, fertilizers, drugs or clothing.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE. This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (for example, sandy soil) and/or the depth to the water table is shallow. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store in original tightly closed containers in a secure, dry heated storage. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. Do not contaminate food, feedstuffs or domestic water supplies. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Prestige XL Herbicide is a selective postemergence herbicide for the control of broadleaved weeds in spring wheat, durum wheat, winter wheat, spring barley and oats (not underseeded to legumes). Prestige XL Herbicide provides control of annual broadleaved weeds, hard-to-kill annual broadleaved weeds and perennial broadleaved weeds. The components of Prestige XL Herbicide move within the plant to control exposed and underground plant tissues. It mimics naturally occurring plant hormones which control weeds by disrupting normal plant growth patterns. Symptoms of effect include epinasty (twisting of the stems) and swollen nodes.

GENERAL USE PRECAUTIONS

READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE.

- As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.
- DO NOT APPLY TO CROPS UNDERSEEDDED WITH LEGUMES.
- Do not use in greenhouses.
- Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

To minimize spray drift to non-target areas:

1. Minimize drift by using sufficient spray volume to ensure coverage with ASAE coarse droplet size spray.
2. Keep ground-driven spray booms as low as possible and not exceeding 60 cm above the target surface.
3. Spray when wind is less than 8 km/hr.

Do not spray in dead calm near sensitive plants. The "cloud" of suspended droplets may drift onto sensitive plants when the wind comes up. Spray only when wind is blowing away from a sensitive crop, shelterbelt or garden.

Extreme growing conditions such as:

- Drought or near freezing temperatures prior to, at and following time of application may reduce weed control and increase the risk of crop injury at all stages of growth.
- Wet foliage at the time of application may result in reduced weed control.
- Over-application may result in crop injury.
- Make only 1 application per year.
- Do not apply through any type of irrigation system.

Sprayer clean-out

To avoid injury to desirable plants, thoroughly clean equipment used to apply this product before re-use or using it to apply other chemicals.

1. Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. First rinse:
 - Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
 - Agitate and circulate for 15 minutes, and flush through booms and hoses.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.

3. Second rinse:

- Fill the tank with clean water.
- Add All Clear Spray Tank Decontaminator, or Clean-Out Spray Tank Cleaner, or 1 L of household ammonia (containing a minimum of 3 % ammonia) per 100 L of water, or similar tank cleaning agent as per manufacturer's recommendations while filling the tank with clean water.
- Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation. Flush the solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
- If possible, let the solution stand in the sprayer tank and booms for an extended period of time, overnight if possible.
- After flushing the boom and hoses, drain tank completely.
- Remove nozzles and screens and clean separately with a cleaning agent or an ammonia solution (100 mL in 10 L water).

4. Third rinse:

- Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
- Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
- Drain tank completely.

Caution: Do not use ammonia with chlorine bleach. Using ammonia with chlorine bleach will release a gas with a musty chlorine odour which may cause eye, nose, throat, and lung irritation. Do not clean equipment in an enclosed area.

SENSITIVE PLANTS

Do not apply Prestige XL Herbicide directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers, fruit, and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

ROTATIONAL CROP RESTRICTIONS

Fields previously treated with Prestige XL Herbicide can be seeded to wheat, barley, oats and rye (not under-seeded to forage legumes, clover or alfalfa), canola, field peas, flax, forage grasses, mustard, or can be summer-fallowed. Seed only those crops listed above in the year following treatment. Do not seed to field peas for at least 10 months following treatment. Very dry soil conditions following application can result in a risk of injury to field peas grown in rotation. If severe drought conditions are experienced during the months of June to August inclusive in the year of application, delay seeding field peas an additional 12 months (total 22 months following application). Contact your local Dow AgroSciences Canada representative or retailer for more information before seeding field peas following drought conditions in the previous year.

PRE-HARVEST/GRAZING INTERVALS

- Do not cut or graze treated fields of wheat, barley or oats within 7 days after application.
- Do not harvest wheat, barley or oats within 60 days after application, or within 7 days after application when harvesting for forage.
- Withdraw meat animals from treated fields at least 3 days before slaughter.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc at 1-800-667-3852 or www.dowagro.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

DIRECTIONS FOR USE

Prestige XL Herbicide, applied with ground or aerial application equipment (see Application Directions section), will provide wide spectrum broadleaved weed control in spring wheat, durum wheat, winter wheat, spring barley and oats.

Field sprayer application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

DO NOT APPLY TO CROPS UNDERSEEDED WITH LEGUMES.

I. Low Rate: To control the following weeds apply a uniform spray containing 1.75 L/ha of Prestige XL Herbicide.

Weeds Controlled

buckwheat, wild (1-8 leaf)	plantain**
burdock	prickly lettuce
cleavers (1-8 whorls)	ragweeds
Canada thistle (low infestations)	shepherd's purse
cocklebur	stinkweed
field horsetail**	stork's-bill (1-8 leaf)
flax, volunteer (1-12 cm)	sunflower, annual
flixweed (spring seedling 2-4 leaf)	sunflower, volunteer
kochia ***	vetch
lamb's-quarters	wild radish
mustard, wild	

II. High Rate: To control the above weeds plus the following weeds apply a uniform spray containing 2.34 L/ha of Prestige XL Herbicide.

Weeds Controlled

buckwheat, tartary	mallow, round-leaved (1-6 leaf)
Canada thistle * (medium to high infestations)	pigweed, red-root
canola, volunteer	pigweed, Russian
chickweed, common (up to 6 cm) ***	scentless chamomile
dandelion (spring rosettes only)	smartweed
groundsel, common	sowthistle, annual
hemp-nettle (2-6 leaf)	sowthistle, perennial *

- ♦ Season long control, with some regrowth in the fall (top growth control).
- ♦♦ Top growth control only
- ♦♦♦ Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.

The active ingredients in this tank mixture will only control chickweed that is emerged at time of application. Chickweed plants which emerge after application will not be controlled. To improve the reduction in chickweed population at the end of season, delay the timing of application as late as possible to when the majority of chickweed plants have emerged. The reduction in chickweed population will also be improved in crops which are more competitive and which allow limited light penetration.

NOTE: Prestige XL Herbicide activity is influenced by weather conditions. Optimum activity requires active crop and weed growth. The temperature range for optimum activity is 12°C to 24°C. Reduced activity will occur when temperatures are below 8°C or above 27°C. Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions, e.g. drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist.

Timing of Application

Apply postemergence when weeds are in the seedling stage (2-4 leaf) and when spring wheat, durum wheat, spring barley and oats are in the 3-leaf to just before the flag leaf emergence stage. Apply to winter wheat in the spring from the 3 tiller stage to just before the flag leaf stage. Do not apply later than the flag-leaf emergence stage. Maximum of 1 application per year.

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the required amount of Prestige XL Herbicide.
4. Fill the sprayer tank with sufficient water (see water volumes in Application Directions section). Maintain sufficient agitation in the spray tank during mixing and spraying to ensure a uniform spray mixture.
5. Follow sprayer directions and precautions as outlined above, especially when applying next to sensitive crops (e.g., canola and legumes).
6. Follow sprayer clean-up directions as listed.

APPLICATION DIRECTIONS (GROUND AND AERIAL APPLICATIONS)

(1) Ground Application

Using ground equipment, apply Prestige XL Herbicide alone or with tank mix partners as a broadcast treatment. Apply Prestige XL Herbicide alone at the recommended rates in a spray volume of 50-100 L water/ha. When tank mixing refer to the label of the tank mix partner label for additional instructions, water volumes, precautions and weeds controlled.

(2) Aerial Application

Do not use human flaggers.

Use Prestige XL Herbicide alone or tank mixed with a product registered for aerial application as a broadcast treatment. Apply the recommended rates of Prestige XL Herbicide and tank mix partner as indicated elsewhere on this label. Apply in a spray volume of 30-50 L water/ha. Refer to the tank mix partner label for additional instructions, precautions and weeds controlled.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate swath marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing should be laundered regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following: The interaction of many equipment-and-weather-related factors determine the potential for spray drift. Users are responsible for considering all these factors when making decisions.

The following drift management requirement must be followed to avoid off-target drift movement from aerial applications: Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

TANK MIXES WITH PRESTIGE XL HERBICIDE FOR ANNUAL GRASS CONTROL

Tank mixtures of Prestige XL Herbicide with other herbicides will provide control of additional weeds. Read all precautions, minimal interval to harvest and directions for use on the Prestige XL Herbicide and tank-mix partner labels, and follow the more stringent of the two. **DO NOT USE THESE TANK MIXES ON OATS.**

Herbicide Tank-mix Partner	Crops Registered	Rate of Herbicide Tank-mix Partner	Adjuvant Rate	Additional Weeds
Achieve™ Liquid	spring wheat, durum wheat, winter wheat, spring barley	0.5 L/ha	Turbocharge 0.5 L/100 L of spray volume (0.5% v/v)	green foxtail wild oats
Simplicity™	spring wheat, durum wheat, winter wheat	0.5 L/ha		labelled grassy and broadleaved weeds

Horizon Herbicide Tank Mix	spring wheat, durum wheat	230 mL/ha	Score 0.8 L/ha (0.8% v/v)	green foxtail wild oats
Assert 300 SC	spring wheat, durum wheat, spring barley	1.3 L/ha	Refer to Assert 300 SC label	wild oats (1-3 leaf)
		1.6 L/ha		wild oats (4 leaf)
Everest 70 WDG or Everest Solupak 70 DF	spring wheat, durum wheat	43 g/ha	Refer to Everest label	green foxtail wild oats
Puma Advance	spring wheat, durum wheat, spring barley	510 mL/ha	None required	green foxtail only
		1.02 L/ha		green foxtail, wild oats & barnyard grass

Tank mixes with Achieve herbicides may cause temporary injury if applied before the 4-leaf stage, however, yield will not normally be affected.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: The DIRECTIONS FOR USE for this product for the use(s) described below were developed by persons other than Dow AgroSciences Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Dow AgroSciences Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed below.

Accordingly, the User assumes all risks related to performance and crop tolerance arising, and agree to hold Dow AgroSciences Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described on this label.

DIRECTIONS FOR USE

SEEDLING AND ESTABLISHED TALL FESCUE GROWN FOR SEED: For control of labelled weeds on seedling (4 leaf to flag leaf) or established tall fescue grown for seed. Apply one post-emergent application when weeds are at the 2-4 leaf stage. Ground application only. Do not cut treated fields for hay/forage. Do not graze treated fields.

Application rates: Apply Prestige XL Herbicide at a rate of 2.34 L/ha.

Apply in a minimum spray volume of 100 L water/ha.

FOR CONTROL OF LABELLED WEEDS IN THE FOLLOWING SEEDLING AND ESTABLISHED FORAGE GRASSES GROWN FOR SEED: Creeping Red Fescue

Intermediate Wheat Grass
Crested Wheat Grass
Meadow Brome Grass
Smooth Brome Grass
Timothy

Apply one application per year in a spray volume of 100-200 L/ha to control labelled weeds in seedling (4 leaf to flag leaf) or established forage grasses. Application should be made postemergence when weeds are in the 2-4 leaf stage. Apply in a broadcast spray using a hydraulic boom ground sprayer.

Application rates: Prestige XL Herbicide at 2.34 L/ha

Do not cut treated fields for hay/forage. Do not graze treated fields. Do not harvest the treated crop within 60 days of application.

LABELLED ANNUAL AND PERENNIAL BROADLEAVED WEEDS IN CANARYSEED (*Phalaris canariensis*)

For the control of labelled annual and perennial broadleaved weeds in canaryseed (*Phalaris canariensis*), apply Prestige XL Herbicide at a rate of 2.34 L/ha in a minimum of 100 L of water to thoroughly cover the weeds with a spray pressure of 200 to 275 kPa. Apply when weeds are in the seedling stage (2-4 leaf) and when canaryseed (*Phalaris canariensis*), is in the 3-leaf stage up to just before the flag leaf emergence stage. Apply using a ground boom sprayer or aerial sprayer, and apply only one post-emergent application per season. Do NOT apply within 60 days of harvest.

Refer to the main Prestige XL Herbicide label for additional details and instructions before using.

READ THE ROTATIONAL CROPPING RESTRICTIONS ON FULL LABEL BEFORE USING THIS PRODUCT.

Improved Pastures containing only forage grasses.

Prestige XL can be applied post emergence as a broadcast spray to control weeds in improved pastures that may eventually be rotated into annual cropland. Such pastures may contain non-native, tame or introduced forage grass species.

For pastures grown for seed please refer to the instructions listed in the above label section "Seedlings, established grasses and Tall fescue grown for seed".

DO NOT APPLY TO CROPS UNDERSEEDDED WITH LEGUMES.

Do not spray improved pastures if the injury to existing legume species cannot be tolerated. Prestige XL will injure or eliminate legume plants (e.g. alfalfa, clover species).

DIRECTIONS FOR USE

Apply when weeds are in the 2-4 leaf stage and actively growing. Best results are obtained from applications made to seedling weeds. Only weeds emerged at the time of treatment will be controlled. Extreme growing conditions such as drought or near freezing temperature prior to, at, and following time of application may reduce weed control. Pastures in poor condition or under stress (e.g., over-grazed, nutrient deficient, etc.) could lead to reduced weed control as a result of limited competition from the pasture grasses. Foliage that is wet at the time of application may decrease control..

Application rate: Prestige XL Herbicide at 1.75 – 2.34 L/ha

Weeds controlled: Refer to the weeds controlled above with Prestige XL Herbicide at 1.75 – 2.34 L/ha.

Restrictions:

1. Do not permit lactating dairy animals to graze fields within 7 days after application.
2. Do not harvest forage or cut hay within 7 days after application.
3. Withdraw meat animals from treated fields at least 3 days before slaughter.

Refer to the main Prestige XL Herbicide label for additional details and instructions before using.

READ THE ROTATIONAL CROPPING RESTRICTIONS ON THE FULL LABEL BEFORE USING THIS PRODUCT.

BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: handheld or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:		
			Freshwater Habitat of Depths:		Terrestrial habitat
			Less than 1 m	Greater than 1 m	
Field sprayer	Spring wheat, durum wheat, winter wheat, spring barley, seedling and established tall fescue grown for seed, seedling and established forage grasses grown for seed, canary seed, improved pastures		1	0	1
Aerial	Spring wheat, durum wheat, winter wheat, spring barley, seedling and established tall fescue grown for seed, seedling and established forage grasses grown for seed, canary seed	Fixed wing	4	0	65
		Rotary wing	1	0	55

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The spray drift buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Prestige XL Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Prestige XL Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Prestige XL Herbicide or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.

- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.dowagro.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in any way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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All other products listed are registered trademarks of their respective companies.

121517

Label Code: CN-31428-006-E

Replaces: CN-31428-005-E

Specimen label notes

Branding update

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: PRESTIGE™ XL Herbicide

Issue Date: 02/02/2015

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PRESTIGE™ XL Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.

2100 450 1ST STREET SW

CALGARY AB T2P 5H1

CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 02/02/2015

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid

Color amber

Odor Spicy odor

Hazard Summary

WARNING!!

Combustible liquid and vapor.

Causes eye irritation.

May be harmful if inhaled.

May cause central nervous system effects.

May cause anesthetic effects.

May cause respiratory tract irritation.

Isolate area.

Keep upwind of spill.

Toxic fumes may be released in fire situations.

Possible cancer hazard. May cause cancer based on animal data.

Highly toxic to fish and/or other aquatic organisms.

Potential Health Effects

Eyes: May cause severe eye irritation.

May cause moderate corneal injury.

May cause permanent impairment of vision.

Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Brief contact may cause slight skin irritation with local redness.

May cause drying and flaking of the skin.

For the minor component(s):

Skin contact may cause an allergic skin reaction in a small proportion of individuals.

Inhalation: Prolonged excessive exposure to mist may cause adverse effects.

Mist may cause irritation of upper respiratory tract (nose and throat) and lungs.

May cause central nervous system effects.

Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Signs and symptoms of excessive exposure may include:

Nausea and/or vomiting.

Sweating.

Ingestion: Low toxicity if swallowed.

Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

May be fatal if swallowed and enters airways.

Chronic Exposure: For similar active ingredient(s).

2-methyl-4-chlorophenoxyacetic acid (MCPA).

In animals, effects have been reported on the following organs:

Blood.

Kidney.

Liver.

Testes.

For the active ingredient(s):

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Has caused birth defects in laboratory animals only at doses toxic to the mother.

Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure.

Based on information for component(s):

In animals, effects have been reported on the following organs:

Gastrointestinal tract.

Respiratory tract.

Thyroid.

Urinary tract.

Lung.

Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen.

Ingestion of naphthalene by humans has caused hemolytic anemia.

Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust.

Contains naphthalene which has caused cancer in some laboratory animals.

In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

N-methyl pyrrolidone has caused toxic effects to the fetus in laboratory animals at high dose levels with either mild or undetectable maternal toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Mixture

This product is a mixture.

Component	CASRN	Weight percent
MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester	29450-45-1	36.81%
Fluroxypyr 1-methylheptyl ester	81406-37-3	8.74%
3,6-Dichloropicolinic acid (Clopyralid)	1702-17-6	4.21%
Heavy aromatic naphtha	64742-94-5	39.1%
Methyl pyrrolidone	872-50-4	5.0%
Naphthalene	91-20-3	3.9%
1,2,4-Trimethylbenzene	95-63-6	1.9%
Balance	Not available	0.34%

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be available in work area.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment. Repeated excessive exposure may aggravate preexisting lung disease. Skin contact may aggravate preexisting dermatitis.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Unsuitable extinguishing media: no data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep away from heat, sparks and flame. Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container tightly closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation	
Fluroxypyr 1-methylheptyl ester	Dow IHG	TWA	10 mg/m ³	
3,6-Dichloropicolinic acid (Clopyralid)	Dow IHG	TWA	10 mg/m ³	
Methyl pyrrolidone	US WEEL	TWA	10 ppm	
	US WEEL	TWA	Absorbed via skin	
	Rohm and Haas	TWA	10 ppm	
	Rohm and Haas	STEL	25 ppm	
	Rohm and Haas	Absorbed via skin		
	CA ON OEL	TWA	400 mg/m ³	
	US WEEL	TWA	Absorbed via skin	
	Naphthalene	ACGIH	TWA	Absorbed via skin
		ACGIH	TWA	10 ppm
		ACGIH	STEL	15 ppm
CA AB OEL		TWA	52 mg/m ³ 10 ppm	
CA AB OEL		TWA	Absorbed via skin	
CA AB OEL		STEL	79 mg/m ³ 15 ppm	
CA AB OEL		STEL	Absorbed via skin	
CA BC OEL		TWA	10 ppm	
CA BC OEL	TWA	Absorbed via skin		

	CA BC OEL	STEL	15 ppm
	CA BC OEL	STEL	Absorbed via skin
	CA QC OEL	TWAEV	52 mg/m3 10 ppm
	CA QC OEL	STEV	79 mg/m3 15 ppm
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm
	CA BC OEL	TWA	25 ppm

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Styrene/butadiene rubber. Examples of acceptable glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid
Color	amber
Odor	Spicy odor
Odor Threshold	no data available
pH	no data available
Melting point/range	Not applicable

Freezing point	no data available
Boiling point (760 mmHg)	no data available
Flash point	closed cup 69.4 °C
Evaporation Rate (Butyl Acetate = 1)	no data available
Flammability (solid, gas)	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapor Pressure	no data available
Relative Vapor Density (air = 1)	no data available
Relative Density (water = 1)	no data available
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
Dynamic Viscosity	no data available
Kinematic Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	no data available
Liquid Density	1.015 g/ml
Molecular weight	no data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: Avoid contact with: Chlorine. Fluorine. Strong acids. Strong bases. Strong oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Hydrogen fluoride. Nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product: Single dose oral LD50 has not been determined. Based on information for component(s): Estimated.
LD50, Rat, 4,400 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined. Based on information for component(s): Estimated.
LD50, Rabbit, > 2,000 mg/kg

Acute inhalation toxicity

Prolonged excessive exposure to mist may cause adverse effects. Mist may cause irritation of upper respiratory tract (nose and throat) and lungs. May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Signs and symptoms of excessive exposure may include: Nausea and/or vomiting. Sweating.

As product: The LC50 has not been determined.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation

May cause severe eye irritation.
May cause moderate corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.
May cause permanent impairment of vision.

Sensitization

For the active ingredient(s):
Did not cause allergic skin reactions when tested in guinea pigs.
For the solvent(s):
Did not cause allergic skin reactions when tested in humans.
For the minor component(s):
Skin contact may cause an allergic skin reaction in a small proportion of individuals.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For similar active ingredient(s).

2-methyl-4-chlorophenoxyacetic acid (MCPA).

In animals, effects have been reported on the following organs:

Blood.

Kidney.

Liver.

Testes.

Based on information for component(s):

In animals, effects have been reported on the following organs:

Gastrointestinal tract.

Respiratory tract.

Thyroid.

Urinary tract.

Lung.

Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust.

Ingestion of naphthalene by humans has caused hemolytic anemia.

Carcinogenicity

For the active ingredient(s): Clopyralid. For similar active ingredient(s). 2-methyl-4-chlorophenoxyacetic acid (MCPA). Fluroxypyr. Did not cause cancer in laboratory animals.

Contains naphthalene which has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

Teratogenicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Has caused birth defects in laboratory animals only at doses toxic to the mother. Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure.

N-methyl pyrrolidone has caused toxic effects to the fetus in laboratory animals at high dose levels with either mild or undetectable maternal toxicity.

Reproductive toxicity

For the active ingredient(s): In animal studies, did not interfere with reproduction.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative. For the minor component(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases.

Aspiration Hazard

May be fatal if swallowed and enters airways.

COMPONENTS INFLUENCING TOXICOLOGY:**MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester****Acute inhalation toxicity**

Maximum attainable concentration. LC50, Rat, 4 Hour, Liquid aerosol., > 4.5 mg/l No deaths occurred at this concentration.

Fluroxypyr 1-methylheptyl ester**Acute inhalation toxicity**

Prolonged exposure is not expected to cause adverse effects. Dust may cause irritation to upper respiratory tract (nose and throat).

Maximum attainable concentration. LC50, Rat, male and female, 4 Hour, dust/mist, > 1.16 mg/l No deaths occurred at this concentration.

3,6-Dichloropicolinic acid (Clopyralid)**Acute inhalation toxicity**

No adverse effects are anticipated from single exposure to dust. Based on the available data, respiratory irritation was not observed. Based on the available data, narcotic effects were not observed.

As product: LC50, Rat, 4 Hour, Dust, > 1 mg/l

No deaths occurred at this concentration. The LC50 value is greater than the Maximum Attainable Concentration.

Heavy aromatic naphtha**Acute inhalation toxicity**

LC50, Rat, 4 Hour, dust/mist, > 4.8 mg/l

LC50, Rat, 4 Hour, vapour, > 0.2 mg/l No deaths occurred following exposure to a saturated atmosphere.

Naphthalene**Acute inhalation toxicity**

Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Excessive exposure may cause lung injury. Signs and symptoms of excessive exposure may include: Headache. Confusion. Sweating. Nausea and/or vomiting.

LC50, Rat, 4 Hour, vapour, > 0.41 mg/l The LC50 value is greater than the Maximum Attainable Concentration.

1,2,4-Trimethylbenzene**Acute inhalation toxicity**

Prolonged excessive exposure may cause serious adverse effects, even death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50, Rat, 4 Hour, vapour, 18 mg/l

Balance**Acute inhalation toxicity**

The LC50 has not been determined.

Carcinogenicity**Component**
Naphthalene**List**

IARC

US NTP

Classification

Group 2B: Possibly carcinogenic to humans

Reasonably anticipated to be a human carcinogen

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Toxicity

MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester

Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), static test, 96 Hour, > 0.50 mg/l

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), 48 Hour, 0.29 mg/l

Acute toxicity to algae/aquatic plants

EC50, *Skeletonema costatum*, 96 Hour, Growth inhibition (cell density reduction), 0.17 mg/l

EC50, *Lemna minor* (duckweed), 14 d, 0.13 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, *Colinus virginianus* (Bobwhite quail), 14 d, > 2250mg/kg bodyweight.

dietary LC50, *Colinus virginianus* (Bobwhite quail), 5 d, > 5620mg/kg diet.

Fluroxypyr 1-methylheptyl ester

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, > 0.225 mg/l, OECD Test Guideline 203 or Equivalent

Toxicity to aquatic species occurs at concentrations above material's water solubility.

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), semi-static test, 48 Hour, > 0.183 mg/l, OECD Test Guideline 202 or Equivalent

Toxicity to aquatic species occurs at concentrations above material's water solubility.

Acute toxicity to algae/aquatic plants

ErC50, diatom *Navicula* sp., static test, 72 Hour, 0.24 mg/l, OECD Test Guideline 201 or Equivalent

EbC50, alga *Scenedesmus* sp., 72 Hour, > 0.47 mg/l

ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, > 1.410 mg/l

EC50, *Lemna gibba*, 14 d, > 2.31 mg/l

Chronic toxicity to fish

NOEC, Rainbow trout (*Oncorhynchus mykiss*), 0.32 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50, *Colinus virginianus* (Bobwhite quail), 5 d, > 2000mg/kg bodyweight.

dietary LC50, *Colinus virginianus* (Bobwhite quail), > 5000mg/kg diet.

oral LD50, *Apis mellifera* (bees), 48 Hour, > 100micrograms/bee

contact LD50, *Apis mellifera* (bees), 48 Hour, > 100micrograms/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), > 1,000 mg/kg

3,6-Dichloropicolinic acid (Clopyralid)**Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, > 99.9 mg/l

LC50, Lepomis macrochirus (Bluegill sunfish), 96 Hour, > 102 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 99 mg/l

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate inhibition, 33.1 mg/l

EC50, blue-green alga Anabaena flos-aquae, 120 Hour, 37.1 mg/l

EC50, Lemna gibba, 14 d, 89 mg/l

Toxicity to bacteria

Bacteria, > 100 mg/l

Chronic toxicity to fish

NOEC, Pimephales promelas (fathead minnow), 34 d, Other, 10.8 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), static test, 21 d, 17 mg/l

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50, Anas platyrhynchos (Mallard duck), 1465mg/kg bodyweight.

dietary LC50, Anas platyrhynchos (Mallard duck), > 5000mg/kg diet.

oral LD50, Apis mellifera (bees), 48 Hour, mortality, > 100micrograms/bee

contact LD50, Apis mellifera (bees), > 98.1micrograms/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, survival, > 1,000 mg/kg

Heavy aromatic naphtha**Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, Gambusia affinis (Mosquito fish), 96 Hour, 811 mg/l

Acute toxicity to algae/aquatic plants

EC50, Algae, 72 Hour, 21 - 165 mg/l

Naphthalene**Acute toxicity to fish**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 0.11 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 1.6 - 24.1 mg/l

Chronic toxicity to fish

NOEC, Other, flow-through, 40 d, mortality, 0.37 mg/l

1,2,4-Trimethylbenzene**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 7.7 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 3.6 mg/l

Balance**Acute toxicity to fish**

No relevant data found.

Persistence and degradability**MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester****Biodegradability:** No relevant information found.**Stability in Water (1/2-life)**

Hydrolysis, half-life, 76 d, pH 7, Half-life Temperature 25 °C, Measured

Hydrolysis, half-life, 117 d, pH 9, Half-life Temperature 25 °C, Measured

Fluroxypyr 1-methylheptyl ester**Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

Biodegradation: 32 %**Exposure time:** 28 d**Method:** OECD Test Guideline 301D or Equivalent**Theoretical Oxygen Demand:** 2.2 mg/mg**Stability in Water (1/2-life)**

, half-life, 454 d

3,6-Dichloropicolinic acid (Clopyralid)**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

Biodegradation: 5 - 10 %**Exposure time:** 28 d**Method:** OECD Test Guideline 301B or Equivalent**Theoretical Oxygen Demand:** 0.71 mg/mg**Chemical Oxygen Demand:** 0.73 mg/mg**Biological oxygen demand (BOD)**

Incubation Time	BOD
20 d	0 %

Stability in Water (1/2-life)

Hydrolysis, pH 4 - 9, Stable

Photodegradation**Test Type:** Half-life (direct photolysis)**Heavy aromatic naphtha****Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.**Naphthalene****Biodegradability:** Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).**Theoretical Oxygen Demand:** 3.00 mg/mg**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	57.000 %
10 d	71.000 %
20 d	71.000 %

Photodegradation**Test Type:** Half-life (indirect photolysis)**Sensitizer:** OH radicals**Atmospheric half-life:** 5.9 Hour**Method:** Estimated.**1,2,4-Trimethylbenzene****Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 4 - 18 %**Exposure time:** 28 d**Method:** OECD Test Guideline 301C or Equivalent**Theoretical Oxygen Demand:** 3.19 mg/mg**Photodegradation****Test Type:** Half-life (indirect photolysis)**Sensitizer:** OH radicals**Atmospheric half-life:** 0.641 d**Method:** Estimated.**Balance****Biodegradability:** No relevant data found.**Bioaccumulative potential****MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester****Bioaccumulation:** Expected to be relatively immobile in soil (Koc > 5000). Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).**Partition coefficient: n-octanol/water(log Pow):** 6.17 Estimated.**Bioconcentration factor (BCF):** 11,250

Fluroxypyr 1-methylheptyl ester

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 5.04 Measured

Bioconcentration factor (BCF): 26 Oncorhynchus mykiss (rainbow trout) Measured

3,6-Dichloropicolinic acid (Clopyralid)

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -2.63

Bioconcentration factor (BCF): < 1 Fish. Measured

Heavy aromatic naphtha

Bioaccumulation: For similar material(s): Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Naphthalene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 3.3 Measured

Bioconcentration factor (BCF): 40 - 300 Fish. 28 d Measured

1,2,4-Trimethylbenzene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 3.63 Measured

Bioconcentration factor (BCF): 33 - 275 Cyprinus carpio (Carp) 56 d Measured

Balance

Bioaccumulation: No relevant data found.

Mobility in soil**MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester**

Partition coefficient(Koc): 10500 Estimated.

Fluroxypyr 1-methylheptyl ester

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient(Koc): 6200 - 43000

3,6-Dichloropicolinic acid (Clopyralid)

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 4.9

Heavy aromatic naphtha

No relevant data found.

Naphthalene

Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient(Koc): 240 - 1300 Measured

1,2,4-Trimethylbenzene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient(Koc): 720 Estimated.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester, Fluroxypyr 1-methylheptyl ester)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester, Fluroxypyr 1-methylheptyl ester

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester, Fluroxypyr 1-methylheptyl ester)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester, Fluroxypyr 1-methylheptyl ester
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(MCPA 2-EHE: 2-Methyl-4-Chlorophenoxyacetic Acid 2-Ethylhexyl Ester, Fluroxypyr 1-methylheptyl ester)
UN number	UN 3082
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Class IIIA

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act Registration Number: 31428

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
3	2	0

Revision

Identification Number: 101300375 / A215 / Issue Date: 02/02/2015 / Version: 1.0

DAS Code: GF-3373

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

Absorbed via skin	Absorbed via skin
ACGIH	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA ON OEL	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
CA QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Dow IHG	Dow Industrial Hygiene Guideline
Rohm and Haas	Rohm and Haas OEL's
STEL	Short term exposure limit
STEV	Short-term exposure value
TWA	8-hour time weighted average
TWAEV	Time-weighted average exposure value
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

2016-2917
2016-09-16



GROUP	3	FUNGICIDE
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**NET CONTENTS:
2 - 101 LITRES and BULK**

PROLINE[®] 480 SC Foliar Fungicide

Suspension

For Control or Suppression of Listed Diseases in Barley, Borage, *Brassica carinata*, Bushberries, Canola, Chickpeas, Crambe, Low Growing Berries - except strawberries, Corn, Cucurbits, Flax (Linseed), Lentils, Oats, Oriental Mustard, Peanut, Rapeseed, Safflower, Soybean, Sugar Beet, Sunflower, Wheat and Certain Other Small Grains.

AGRICULTURAL

SYMBOL – Triple Rinse

CAUTION – POISON

REGISTRATION NUMBER: **28359**
PEST CONTROL PRODUCTS ACT

GUARANTEE:
Prothioconazole 480 g/L

Contains 1,2-benzisothiazolin-3-one at 0.04% and 5-chloro-2-methyl-4-isothiazolin-3-one at 0.001% and 2-methyl-4-isothiazolin-3-one at 0.0004% as preservatives.

**READ THE LABEL BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

**Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB
T2C 3G3**

For product information, call: 1-888-283-6847

**In case of spills, poisoning or fire, telephone emergency response number: 1-800-334-7577
(24 hours a day).**

GENERAL INFORMATION

PROLINE 480 SC Foliar Fungicide is a broad-spectrum systemic fungicide for the control or suppression of listed *Ascomycetes*, *Basidiomycetes* and *Deuteromycetes* diseases on barley, bushberries, borage, *Brassica carinata*, canola, chickpeas, crambe, low growing berries - except strawberries, corn, cucurbits, flax (linseed), lentils, oats, Oriental mustard, peanut, rapeseed, safflower, soybean, sugar beet, sunflower, wheat and certain other small grains.

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Harmful if swallowed, inhaled or absorbed through skin. Avoid contact with skin, eyes, and clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, or smoking. If product comes in contact with clothing, remove all contaminated clothing, wash skin with soap and water and dress in clean clothing. Launder applicator clothing separate from other laundry. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings. A restricted entry interval (REI) of 20 days is required for hand-harvesting sweet corn and for detasseling seed corn. An REI of 3 days is required for hand-line irrigation in cucurbits and bushberries. For all other activities do not re-enter treated fields until 24 hours after application. If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.bayercropscience.ca.

PROTECTIVE CLOTHING AND EQUIPMENT:

- Workers must wear long pants, long-sleeved shirts, boots and chemical resistant gloves during mixing, loading, application, clean-up and repair activities. In addition, workers must wear safety goggles or a face shield during mixing, loading, clean-up and repair.
- Gloves are not required during application within closed cabs or cockpits.

FIRST AID:

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label, or product name and Pest Control Product Registration number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

- Treat symptomatically.
- Medical Personnel should contact Bayer's Medical Information Services, Toll-Free: 1-800-334-7577.

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

- To prevent contamination, store this product away from food and feed.
- Keep away from fire or open flame or other sources of heat.
- Do not store at temperatures below freezing.
- If stored for 1 year or longer, shake well before using.
- Store the tightly closed container away from feeds, seeds, fertilizer, plants and foodstuffs.
- Do not use or store in or around the home.
- Keep in original container during storage.
- In case of fire, leaking or damaged containers, call toll free 1-800-334-7577.

DISPOSAL

Recyclable Container Disposal:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

Disposal of Unused Spray Solution:

If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, NOT ON THE CROP, away from water supplies, ditches, and irrigation canals. Buffer zones indicated in the DIRECTIONS FOR USE must also be respected.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

For more information contact:

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB
T2C 3G3

Proline[®] is a registered trademark of Bayer.
All other products mentioned are trademarks of their respective companies.



GROUP	3	FUNGICIDE
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**NET CONTENTS:
2 - 101 LITRES and BULK**

PROLINE[®] 480 SC Foliar Fungicide Suspension

For Control or Suppression of Listed Diseases in Barley, Borage, *Brassica carinata*, Bushberries, Canola, Chickpeas, Crambe, Low Growing Berries - except strawberries, Corn, Cucurbits, Flax (Linseed), Lentils, Oats, Oriental Mustard, Peanut, Rapeseed, Safflower, Soybean, Sugar Beet, Sunflower, Wheat and Certain Other Small Grains.

AGRICULTURAL

SYMBOL – Triple Rinse

CAUTION – POISON

REGISTRATION NUMBER: **28359**
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GUARANTEE:
Prothioconazole 480 g/L

Contains 1,2-benzisothiazolin-3-one at 0.04% and 5-chloro-2-methyl-4-isothiazolin-3-one at 0.001% and 2-methyl-4-isothiazolin-3-one at 0.0004% as preservatives.

**READ THE LABEL BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

**Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB
T2C 3G3**

For product information, call: 1-888-283-6847

**In case of spills, poisoning or fire, telephone emergency response number: 1-800-334-7577
(24 hours a day).**

PROLINE 480 SC Foliar Fungicide

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For more information, contact:

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB
T2C 3G3

GENERAL INFORMATION

Section 1: The Product

PROLINE 480 SC Foliar Fungicide is a broad-spectrum systemic fungicide for the control or suppression of listed *Ascomycetes*, *Basidiomycetes* and *Deuteromycetes* diseases on barley, bushberries, *Brassica carinata*, borage, canola, chickpeas, crambe, low growing berries - except strawberries, corn, cucurbits, flax (linseed), lentils, oats, Oriental mustard, peanut, rapeseed, safflower, soybean, sugar beet, sunflower, wheat and certain other small grains.

SAFETY AND HANDLING

Section 2: Precautions, Protective Clothing & Equipment, and Re-entry Restriction.

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Harmful if swallowed, inhaled or absorbed through skin. Avoid contact with skin, eyes, and clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, or smoking. If product comes in contact with clothing, remove all contaminated clothing, wash skin with soap and water and dress in clean clothing. Launder applicator clothing separate from other laundry. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings. A restricted entry interval (REI) of 20 days is required for hand-harvesting sweet corn and for detasseling seed corn. An REI of 3 days is required for hand-line irrigation in cucurbits and bushberries. For all other activities do not re-enter treated fields until 24 hours after application. If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.bayercropscience.ca.

PROTECTIVE CLOTHING AND EQUIPMENT:

- Workers must wear long pants, long-sleeved shirts, boots and chemical resistant gloves during mixing, loading, application, clean-up and repair activities. In addition, workers must wear safety goggles or a face shield during mixing, loading, clean-up and repair.
- Gloves are not required during application within closed cabs or cockpits.

Section 3: First Aid and Toxicological Information

FIRST AID:

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label, or product name and Pest Control Product Registration number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

- Treat symptomatically.
- Medical Personnel should contact Bayer's Medical Information Services, Toll-Free: 1-800-334-7577.

Section 4: ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Section 5: STORAGE

Storage:

- To prevent contamination, store this product away from food and feed.
- Keep away from fire or open flame or other sources of heat.
- Do not store at temperatures below freezing.
- If stored for 1 year or longer, shake well before using.
- Store the tightly closed container away from feeds, seeds, fertilizer, plants and foodstuffs.
- Do not use or store in or around the home.
- Keep in original container during storage.
- In case of fire, leaking or damaged containers, call toll free 1-800-334-7577.

Section 6: DISPOSAL

Recyclable Container Disposal:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

Disposal of Unused Spray Solution:

If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, NOT ON THE CROP, away from water supplies, ditches, and irrigation canals. Buffer zones indicated in the DIRECTIONS FOR USE must also be respected.

DIRECTIONS FOR USE

Section 7: Crop, Disease, Rate, Timing

CEREALS (Barley, Wheat and Oats)			
CROP	DISEASE	RATE	TIMING
Barley	For suppression of Fusarium Head Blight (<i>Fusarium</i> spp.), or Scab	Apply PROLINE 480 SC Foliar Fungicide once, at 315 to 420 mL/ha (150-200 g a.i./ha) Adjuvant: Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v	<p>Fusarium head blight outbreaks in barley occur when the weather is warm and wet at ear emergence. The application of PROLINE 480 SC Foliar Fungicide for protection against Fusarium head blight (scab) should be considered when these environmental conditions are forecasted for this stage of barley development.</p> <p>Timing of application is critical: For optimum suppression of Fusarium head blight, apply PROLINE 480 SC Foliar Fungicide as a preventative spray within the time period when 70 to 100% of the barley main stem heads are fully emerged, to 3 days after full head emergence.</p> <p>Application of the 420 mL/ha rate is suggested in situations where disease pressure is expected to be high. Such situations may occur when prolonged periods of warm wet weather are forecast during barley ear emergence, when barley is grown in a crop rotation that has contained corn or when susceptible cultivars are grown.</p> <p>Use of the 420 mL/ha rate will typically provide highest levels of mycotoxin reduction.</p> <p>Spray Coverage is essential for optimum efficacy: Spray equipment must be set up to provide good coverage to barley heads. To achieve thorough barley head coverage using ground application equipment, it is recommended to use forward and backward mounted nozzles or nozzles that have a two-directional spray. Nozzles should be operated within the spray pressure recommendations suggested by the manufacturer.</p>
	For control of: Net Blotch (<i>Pyrenophora teres</i>); Scald (<i>Rhynchosporium secalis</i>) Spot Blotch (<i>Cochliobolus sativus</i>)	Apply PROLINE 480 SC Foliar Fungicide once, at 210 to 315 mL/ha (100 -150 g a.i./ha) Adjuvant: Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v	Apply PROLINE 480 SC Foliar Fungicide as a preventive foliar spray when the earliest disease symptoms appear on the leaves and stems. Barley fields should be observed closely for early disease symptoms, particularly when susceptible varieties are planted and/or under prolonged conditions favorable for disease development.
<p>Note: A maximum of 2 applications (735 mL/ha) of PROLINE 480 SC Foliar Fungicide, with a minimum 7 day application interval, may be applied per barley crop, per year. Do not apply within 30 days of harvest. Applications may be made by ground or aerial spray equipment.</p>			

CROP	DISEASE	RATE	TIMING
Wheat (spring, durum and winter)	For suppression of Fusarium Head Blight (<i>Fusarium</i> spp.), or Scab	Apply PROLINE 480 SC Foliar Fungicide once, at 315 to 420 mL/ha (150-200 g a.i./ha)	Fusarium head blight outbreaks in wheat occur when the weather is warm and wet at head emergence and flowering. The application of PROLINE 480 SC Foliar Fungicide for protection against Fusarium head blight (scab) should be considered when these environmental conditions are forecasted for this stage of wheat development.
	For control of Glume blotch (<i>Stagonosora nodorum</i>)	Adjuvant: Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v	<p>Timing of application is critical: For optimum suppression of Fusarium head blight or control of Glume blotch, apply PROLINE 480 SC Foliar Fungicide within the time period from when at least 75% of the wheat heads on the main stem are fully emerged to when 50% of the heads on the main stem are in flower.</p> <p>Application of the 420 mL/ha rate is suggested in situations where disease pressure is expected to be high. Such situations may occur when prolonged periods of warm, wet weather are forecast during anthesis, when wheat is grown in a crop rotation that has contained corn or when more susceptible cultivars or wheat types (i.e. durum) are grown.</p> <p>Use of the 420 mL/ha rate will typically provide highest levels of mycotoxin reduction.</p> <p>Spray Coverage is essential for optimum efficacy: Spray equipment must be set up to provide good coverage to wheat heads. To achieve thorough wheat head coverage using ground application equipment, it is recommended to use forward and backward mounted nozzles or nozzles that have a two-directional spray. Nozzles should be operated within the spray pressure recommendations suggested by the manufacturer.</p>
	For control of : Speckled Leaf Blotch (<i>Septoria tritici</i>) ; Tan spot (<i>Pyrenophora tritici-repentis</i>) ; Leaf Rust (<i>Puccinia recondata</i>)	Apply PROLINE 480 SC Foliar Fungicide at 315 mL/ha (150 g a.i./ha) Adjuvant: Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v	Apply PROLINE 480 SC Foliar Fungicide as a preventive foliar spray when the earliest disease symptoms appear on the leaves and stems. Wheat fields should be observed closely for early disease symptoms, particularly when susceptible varieties are planted and/or under prolonged conditions favorable for disease development.
Note: A maximum of 2 applications (735 mL/ha) of PROLINE 480 SC Foliar Fungicide, with a minimum 7 day application interval, may be applied per wheat crop per year. Do not apply within 30 days of harvest. Applications may be made by ground or aerial spray equipment.			

CROP	DISEASE	RATE	TIMING
Oats	For control of Crown Rust (<i>Puccinia coronata</i>)	Apply PROLINE 480 SC Foliar Fungicide at 315 mL/ha (150 g a.i./ha) Adjuvant: Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v	Apply PROLINE 480 SC Foliar Fungicide as a preventive foliar spray when the earliest disease symptoms appear on the leaves and stems. Fields should be observed closely for early disease symptoms, particularly when susceptible varieties are planted and/or under prolonged conditions favorable for disease development.
Note: A maximum of 2 applications (630 mL/ha) of PROLINE 480 SC Foliar Fungicide, with a minimum 7 day application interval, may be applied per oat crop per year. Do not apply within 30 days of harvest. Applications may be made by ground or aerial spray equipment.			

CROP	DISEASE	RATE	TIMING
Pearl millet, Proso millet, Rye, Triticale, Teosinte, Buckwheat	For suppression of: Fusarium Head Blight (<i>Fusarium</i> spp.), or Scab – except buckwheat For control of : Rust (<i>Puccinia</i> spp.)	Apply PROLINE 480 SC Foliar Fungicide at 315-420 mL/ha (150-200 g a.i./ha) Adjuvant: Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v	Apply PROLINE 480 SC Foliar Fungicide as a preventive foliar spray when the earliest disease symptoms appear on the leaves and stems. Fields should be observed closely for early disease symptoms, particularly when susceptible varieties are planted and/or under prolonged conditions favorable for disease development.
Note: A maximum of 2 applications (735 mL/ha) of PROLINE 480 SC Foliar Fungicide, with a minimum 7 day application interval, may be applied per year. Do not apply within 30 days of harvest. Applications may be made by ground equipment only.			

OILSEED CROPS (Canola, Rapeseed, Oriental Mustard, <i>Brassica carinata</i>)			
CROP	DISEASE	RATE	TIMING
Canola, Rapeseed, Oriental mustard, <i>Brassica carinata</i>	For control of Sclerotinia stem rot (<i>Sclerotinia sclerotiorum</i>)	Apply PROLINE 480 SC Foliar Fungicide at 315 – 368 mL/ha (150-175 g a.i./ha)	Apply PROLINE 480 SC Foliar Fungicide when the crop is in the 20 - 50% bloom stage. Best protection will be achieved when the fungicide is applied prior to petals beginning to fall, and will allow for the maximum number of petals to be protected. The 315 mL/ha rate is the recommended rate for most oilseed crops, however, the higher rate is recommended for fields with a history of heavy disease pressure or for dense crop stands. Good spray coverage of the plants is essential. A second application at a rate of 315 mL/ha may be applied 7-10 days later, up to full bloom, if disease persists or weather conditions are favourable for disease development. When conditions favouring disease are severe, use the shorter interval.
Note: The lowest labelled rate of a non-ionic surfactant, AgSurf or Agral 90, may be tank-mixed with PROLINE 480 SC Foliar Fungicide. The application may be made by ground or aerial spray equipment. A maximum of two applications (683 mL/ha of PROLINE 480 SC Foliar Fungicide) may be applied per crop year. Do not apply within 36 days of harvest.			

PULSE CROPS (Chickpeas, Lentils)			
CROPS	DISEASE	RATE	TIMING
Chickpeas	For control of Ascochyta blight (<i>Ascochyta rabiei</i>)	Apply PROLINE 480 SC Foliar Fungicide at 315 – 420 mL/ha (150-200 g a.i./ha) After the initial application, repeat applications may be made on 10-14 day intervals. Apply the higher rate when conditions favour disease development, or when growing less disease resistant varieties.	Apply PROLINE 480 SC Foliar Fungicide at the first sign of disease. A maximum of 1260 mL/ha of PROLINE 480 SC Foliar Fungicide may be applied per crop year for chickpeas. Maximum of three applications per year.
Lentils	For control of Ascochyta blight (<i>Ascochyta spp.</i>)	Apply PROLINE 480 SC Foliar Fungicide at 315 – 420 mL/ha (150-200 g a.i./ha) After the initial application, one additional application may be made 10-14 days afterwards if conditions remain favourable for continued or increased disease development. Apply the higher rate when conditions favour disease development, or when growing less disease resistant varieties.	Apply PROLINE 480 SC Foliar Fungicide at the first sign of disease. A maximum of 840 mL/ha of PROLINE 480 SC Foliar Fungicide may be applied per crop year for lentils. Maximum of two applications per year.
Note: The lowest labelled rate of a non-ionic surfactant, AgSurf or Agral 90, may be tank-mixed with PROLINE 480 SC Foliar Fungicide. Applications may be made by ground or aerial spray equipment. Do not apply within 7 days of cutting or swathing of the crop.			

Soybean			
CROP	DISEASE	RATE	TIMING
Soybean	For control of: Asian soybean rust (<i>Phakopsora pachyrhizi</i>) Frogeye leaf spot (<i>Cercospora sojina</i>)	Apply PROLINE 480 SC Foliar Fungicide at 210 mL/ha (100 g a.i./ha)	Apply PROLINE 480 SC Foliar Fungicide when first symptoms of disease can be found or that the risk of infection is imminent. Do not apply more than one application per season.
Note: The lowest labelled rate of a non-ionic surfactant, AgSurf or Agral 90, may be tank-mixed with PROLINE 480 SC Foliar Fungicide. The application may be made by ground or aerial spray equipment. Do not apply within 20 days of harvest.			

Corn (field, sweet and popcorn)			
CROP	DISEASE	RATE	TIMING
Corn (field, sweet and popcorn, including seed production)	For the control of Rusts (<i>Puccinia sorghi</i> , <i>Puccinia polysora</i>), Eyespot (<i>Kabatiella zea</i> or <i>Aureobasidium zea</i>), and Northern Blight (<i>Setosphaeria turcica</i>)	Apply PROLINE 480 SC Foliar Fungicide at 315 mL/ha (150 g a.i./ha)	Apply PROLINE 480 SC Foliar Fungicide as a preventive foliar spray when the earliest disease symptoms appear on the leaves and stems. Fields should be observed closely for early disease symptoms, particularly under prolonged conditions favorable for disease development. Under high disease pressure, it is recommended to use a non-ionic surfactant with Proline 480 SC Foliar Fungicide (do not apply a non-ionic surfactant prior to tassel emergence as crop injury may occur). Refer to the section “Note” of this table for directions.
	Provides control of all diseases listed above, plus the following: For the control of Grey Leaf Spot (<i>Cercospora zea-maydis</i>) For the suppression of Fusarium and Gibberella ear rots (<i>Fusarium</i> spp. and <i>Gibberella</i> spp.) For suppression of the stalk rot pathogens <i>Fusarium</i> spp., <i>Gibberella</i> spp. and <i>Colletotrichum</i> spp. which may cause stalk lodging.	Apply PROLINE 480 SC Foliar Fungicide at 420 mL/ha (200 g a.i./ha)	Fusarium Ear Rot outbreaks in corn occur when the weather is warm and wet during silking. It is also driven by hybrid selection and field history of severe fusarium outbreaks. The application of PROLINE 480 SC Foliar Fungicide for protection against Fusarium Ear Rot should be considered when these conditions are forecasted for a specific corn field. Applications of Proline 480 SC timed for suppression of fusarium ear rot may also reduce lodging caused by stalk rot pathogens. <u>Timing of application is critical:</u> For optimum suppression of Fusarium Ear Rot apply PROLINE 480 SC Foliar Fungicide from the development stage of corn between the tip of stigmata visible (silking, BBCH 63) to the stigmata drying (silk browning, BBCH 67). PROLINE 480 SC will reduce both disease symptoms and levels of mycotoxin in the grain. <u>Spray Coverage is essential for optimum efficacy:</u> Spray equipment must be set up to provide good coverage to the cobs. To achieve thorough cob coverage using ground application equipment, it is recommended to use drop-nozzles. Nozzles should be operated within the spray pressure recommendations suggested by the manufacturer.
Note: The lowest labelled rate of a non-ionic surfactant, AgSurf or Agral 90, may be tank-mixed with PROLINE 480 SC Foliar Fungicide. Do not apply a non-ionic surfactant prior to tassel emergence. The application may be made by ground or aerial spray equipment. Do not apply within 14 days of harvest. Do not apply more than one application per season.			

Peanut		
DISEASE	RATE	TIMING
<p><u>Soil-Borne:</u></p> <p>Suppression of <i>Rhizoctonia</i> pod rot (<i>Rhizoctonia solani</i>)</p>	<p>420 mL per hectare (200 g a.i./ha)</p>	<p>For Soil-Borne Diseases</p> <p>Applications of fungicides with a different mode of action should be made prior to and following applications of PROLINE 480 SC Foliar Fungicide to discourage development of resistant strains of fungi.</p> <p>In fields with a history of pod rot or in situations where conditions favour disease development apply PROLINE 480 SC Foliar Fungicide at about mid-season and continue PROLINE 480 SC Foliar Fungicide applications at 14-day intervals.</p> <p>PROLINE 480 SC Foliar Fungicide must be carried by rainfall or irrigation into the root and pod zone for control of pod rot caused by <i>Rhizoctonia solani</i>. Drought conditions will decrease the effectiveness of PROLINE 480 SC Foliar Fungicide against pod rot.</p>
<p><u>Foliar:</u></p> <p>Early Leaf Spot (<i>Cercospora arachidicola</i>)</p> <p>Suppression of Leaf Rust (<i>Puccinia arachidis</i>)</p>	<p>365 - 420 mL per hectare (175 -200 g a.i./ha)</p>	<p>Foliar Disease Spray Program</p> <p>Apply the specified rate in a preventive spray schedule. Apply up to 4 sprays using a 14-day interval</p> <p>Use the higher use rate when conditions are favourable for severe disease pressure and/or when growing less disease resistant varieties.</p>
<p>Note: Apply up to four (4) applications of PROLINE 480 SC Foliar Fungicide per year. When planting varieties with good to excellent levels of resistance to foliar diseases, the application interval may be extended up to 21 days in the absence of soil borne diseases. A maximum of 1.7 L per hectare of PROLINE 480 SC Foliar Fungicide may be applied per year. PROLINE 480 SC Foliar Fungicide may be applied up to 14 days before harvest. Do not feed hay or threshings or allow livestock to graze in treated areas. Applications may be made by ground spray equipment only.</p>		

Cucurbit Vegetables			
CROP	DISEASE	RATE	TIMING
Cucurbit vegetables: Chinese waxgourd (Chinese preserving melon); citron melon; cucumber; gherkin; gourd, edible (includes hyotan, cucuzza, hechima, Chinese okra); <i>Momordica</i> spp (includes balsam apple, balsam pear, bittermelon, Chinese cucumber); muskmelon (includes cantaloupe); pumpkin; squash, summer; squash, winter (includes butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash); watermelon	Fusarium wilt Fusarium blight (<i>Fusarium</i> spp.)	Apply PROLINE 480 SC Foliar Fungicide at 420 mL/ha (0.2 kg a.i./ha) (soil)	Apply PROLINE 480 SC at planting via drip / drench equipment. Follow with foliar treatments during the season.
	Gummy stem blight (<i>Didymella</i> spp.)	Apply PROLINE 480 SC Foliar Fungicide at 420 mL/ha (0.2 kg a.i./ha) (foliar)	
	Powdery mildew (<i>Sphaerotheca</i> fuliginea)	Apply PROLINE 480 SC Foliar Fungicide at 210-420 mL/ha (0.1-0.2 kg a.i./ha)	For Powdery Mildew Control apply PROLINE 480 SC Foliar Fungicide as a preventive foliar spray when the earliest sign of disease is first noticed., repeat at 5 – 10 day intervals with PROLINE or another approved fungicide from a different chemical group
<p>General Comments: Apply up to one (1) soil application and two (2) foliar applications of PROLINE 480 SC at the high rate, or one soil application and four (4) foliar applications per year at the low rate. Repeat foliar applications as needed using a 5- to 10-day spray interval if conditions remain favorable for continued or increasing disease development. Foliar applications may be applied by ground application equipment only. Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v.</p> <p>A maximum of 1.26 L/ha of PROLINE 480 SC may be applied per crop year. Do not apply within 7 days of harvest.</p>			

Bushberry			
CROP	DISEASE	RATE	TIMING
Bushberry subgroup: Aronia berry; blueberry, highbush; blueberry, lowbush; buffalo currant; cranberry, highbush; currant, black; currant, red; elderberry; European barberry; gooseberry; honeysuckle, edible; huckleberry; jostaberry; Juneberry (Saskatoon berry); lingonberry; salal; sea buckthorn; cultivars, varieties, and/or hybrids of these.	Suppression of Septoria leaf spot (<i>Septoria</i> spp.)	Apply PROLINE 480 SC Foliar Fungicide at 315 mL/ha (150 g a.i./ha).	Apply PROLINE 480 SC Foliar Fungicide at the first sign of disease. After the initial application, one additional application may be made 10-14 days afterwards if conditions remain favourable for continued or increased disease development.
	Suppression of Leaf rust (<i>Thekopsora minima</i>) and Valdensinia leaf spot (<i>Valdensinia heterodoxa</i>) - blueberry only	Apply PROLINE 480 SC Foliar Fungicide at 400 mL/ha (190 g a.i./ha)	
	Monilinia blight (<i>Monilinia vaccinii-corymbosi</i>) – blueberry only	Apply PROLINE 480 SC Foliar Fungicide at 315-420 mL/ha (0.15 – 0.2 kg a.i./ha)	Begin applications at early bloom for fruit rot. Make a second application of PROLINE 480 SC or another approved fungicide 5-10 days later.
General Comments: Apply up to two (2) applications of PROLINE 480 SC per year. Applications may be made by ground application equipment only. Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v.			
A maximum of 840 mL/ha of PROLINE 480 SC may be applied per crop year. Do not apply within 7 days of harvest.			

Low-Growing Berry, except strawberry			
CROP	DISEASE	RATE	TIMING
Low growing berry subgroup, except strawberry; Bearberry; bilberry; cloudberry; cranberry; partridgeberry; cultivars, varieties, and/or hybrids of these	Fruit rot: <i>Coleophoma empetri</i> , <i>Glomerella cingulata</i> , <i>Phyllosticta vaccinii</i> , <i>Physalospora vaccinii</i> <i>Allantophomopsis lycopodina</i> , <i>Allantophomopsis cytispora</i> , <i>Fusicoccum putrefaciens</i> , <i>Penicillium</i> spp., <i>Phomopsis vaccinii</i> , <i>Colletotrichum acutatum</i> , <i>Colletotrichum coccodes</i> Suppression of Septoria leaf spot (<i>Septoria</i> spp.)	Apply PROLINE 480 SC Foliar Fungicide at 365 mL/ha (0.175 kg a.i./ha) Adjuvant: Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v	Begin applications at early bloom for fruit rot. Make a second application of PROLINE 480 SC or another approved fungicide 5-10 days later.
<p>General Comments: Apply up to two (2) applications of PROLINE 480 SC per year. Repeat applications as needed using a 5- to 10-day spray interval if conditions remain favorable for continued or increasing disease development. Applications may be made by ground spray equipment only.</p> <p>A maximum of 730 mL/ha of PROLINE 480 SC may be applied per crop year. Do not apply within 45 days of harvest.</p>			

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Bayer CropScience and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Bayer CropScience itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Bayer CropScience harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

CROP	DISEASE	RATE	TIMING
Flax (linseed), Crambe, Borage	For control of Sclerotinia stem rot (<i>Sclerotinia sclerotiorum</i>)	Apply PROLINE 480 SC Foliar Fungicide at 315 – 368 mL/ha (150-175 g a.i./ha)	Apply PROLINE 480 SC Foliar Fungicide when the crop is in the 20 - 50% bloom stage. Best protection will be achieved when the fungicide is applied prior to petals beginning to fall, and will allow for the maximum number of petals to be protected. The higher rate is recommended for fields with a history of heavy disease pressure or for dense crop stands. Good spray coverage of the plants is essential.

Note: The lowest labelled rate of a non-ionic surfactant, AgSurf or Agral 90, may be tank-mixed with PROLINE 480 SC Foliar Fungicide. The application may be made by ground or aerial spray equipment. A maximum of one application (368 mL/ha of PROLINE 480 SC Foliar Fungicide) may be applied per crop year. Do not apply within 36 days of harvest.

CROP	DISEASE	RATE	TIMING
Sugar beets	For control of foliar diseases: Cercospora Leaf Spot (<i>Cercospora beticola</i>)	Apply PROLINE 480 SC Foliar Fungicide at 315 – 415 mL/ha (150 – 200 g a.i./ha)	Apply PROLINE 480 SC Foliar Fungicide at the first sign of disease. Use the higher rate and shorter intervals when conditions are favourable for severe disease pressure and/or when growing less disease-resistant varieties. Apply the specified rate of PROLINE 480 SC Foliar Fungicide in 100 – 200 L of water per hectare when using ground application equipment. Repeat applications as needed using a 14 to 21-day spray interval depending on disease pressure. Use a 14-day spray interval under normal to heavy disease pressure and a 21-day spray interval under light disease pressure.
	For control of soil-borne diseases: Rhizoctonia Crown Rot (<i>Rhizoctonia solani</i>)	Apply PROLINE 480 SC Foliar Fungicide at 415 mL/ha (200 g a.i./ha)	Apply PROLINE 480 SC Foliar Fungicide at the 4-leaf to row closure growth stage. Apply the specified rate of PROLINE 480 SC Foliar Fungicide in 50 – 100 L of water per hectare. Repeat applications as needed using a 21-day spray interval.

Note: A maximum of 3 applications (1245 mL/ha of PROLINE 480 SC Foliar Fungicide) may be applied per crop year. Do not apply within 7 days of harvest. The lowest labelled rate of a non-ionic surfactant (AgSurf or Agral 90 at 0.125% v/v) may be tank-mixed with PROLINE 480 SC Foliar Fungicide. The application may be made by ground or aerial application equipment. PROLINE 480 SC Foliar Fungicide is a Group 3 fungicide. To limit the potential for development of disease resistance, alternate every application of PROLINE 480 SC Foliar Fungicide with a non-Group 3 fungicide.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Bayer CropScience and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Bayer CropScience itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below. Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Bayer CropScience harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

CROP	DISEASE	RATE	TIMING
Sunflower, Safflower	For suppression of Sclerotinia head rot (<i>Sclerotinia sclerotiorum</i>)	Apply PROLINE 480 SC Foliar Fungicide at 420 mL/ha (200 g a.i./ha)	Apply PROLINE 480 SC Foliar Fungicide when the crop is in the 10 - 50% disk flower bloom stage.

Note: The lowest labelled rate of a non-ionic surfactant, AgSurf or Agral 90, may be tank-mixed with PROLINE 480 SC Foliar Fungicide. The application may be made by ground or aerial spray equipment. A maximum of one application (420 mL/ha of PROLINE 480 SC Foliar Fungicide) may be applied per crop year. Do not apply within 45 days of harvest. If applying PROLINE 480 SC Foliar Fungicide to greater than 310 ha per day of sunflower and/or safflower using open cab groundboom equipment, applicators must also wear a NIOSH/MSHA-approved respirator.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests. **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Airblast application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:			
			Aquatic Habitat of Depths:			Terrestrial Habitat
			Less than 1 m	1-3 m	Greater than 3 m	
Field sprayer	All listed crops		2	1	0	0
Airblast sprayer	Bushberries	Early growth stage	25	15	4	1
		Late growth stage	15	5	2	1
Aerial (fixed and rotary wing)	Flax (linseed), crambe, borage, soybeans		10	0	0	0
	Corn, safflower, sunflower		15	5	0	0
	Oats		20	10	0	0
	Canola, Oriental mustard, rapeseed, <i>Brassica carinata</i>		20	10	1	10
	Wheat, barley		25	10	0	10
	Lentils		30	10	0	15
	Sugarbeets		45	15	4	15
	Chickpeas		50	15	5	15

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank-mix partners.

Rotation restrictions:

Treated areas may be replanted with any crop specified on this label as soon as practical after the last application. For crops not listed on this label, do not plant back within 30 days of last application.

Section 8: Resistance Management

Resistance Management Recommendations:

For resistance management, please note that **PROLINE 480 SC Foliar Fungicide** contains a Group 3 fungicide. Any fungal population may contain individuals naturally resistant to PROLINE 480 SC Foliar Fungicide and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance:

- Alternate with fungicides having a different mode of action other than Group 3 every 7 to 10 days after each application of **PROLINE 480 SC Foliar Fungicide**.
- Do not apply more than the indicated maximum number of applications per year specified for each crop in the DIRECTIONS FOR USE, Section 7 table.
- Fungicide use should be based on an integrated pest management (IPM) program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological, and other chemical control practices.
- Monitor efficacy of all fungicides used in the disease management program against the target pathogen and record other factors that may influence fungicide performance and/or disease development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information and to report suspected resistance, contact a Bayer CropScience representative at 1-888-283-6847 or at www.bayercropscience.ca.

Section 9: Application Precautions

GROUND APPLICATION:

1. Use well-maintained and calibrated conventional spray equipment, which provides adequate and uniform coverage.
2. Apply PROLINE 480 SC Foliar Fungicide in a minimum of 100 L water/ha, unless otherwise specified in DIRECTIONS FOR USE, Section 7.
3. Spray screens should be no finer than 50 mesh.
4. Ensure that the by-pass line discharges at the bottom of the tank to minimize foaming.
5. Maintain pressure at no less than 275 kPa to ensure good foliage penetration and coverage.
6. Provincial buffer zones that are greater than the buffer zones indicated in the DIRECTIONS FOR USE, Section 7, should be respected.
7. If spray mixture remains in the tank overnight, or for long periods during the day, agitate thoroughly prior to application.

AERIAL APPLICATION-GENERAL INFORMATION:

1. Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.
2. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment. If you have questions, call 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.
3. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.
4. Apply PROLINE 480 SC Foliar Fungicide in a minimum of 50 L of water/ha.
5. To ensure proper coverage and distribution and to minimize drift, check to see that swath width and droplet size are adequate, and that wind velocities are low.

6. Use mechanical flaggers only.

AERIAL APPLICATION-USE PRECAUTIONS:

1. Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage.
2. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

AERIAL APPLICATION- OPERATOR PRECAUTIONS:

1. **DO NOT** allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.
2. It is desirable that the pilot has communication capabilities at each treatment site at the time of application.
3. The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.
4. All personnel on the job site must wash hands and face thoroughly before eating and drinking.
5. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.
6. Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.

Section 10: Mixing Instructions

Mixing Instructions:

PROLINE 480 SC Foliar Fungicide must be applied with properly calibrated, clean equipment. Prior to adding PROLINE 480 SC Foliar Fungicide to the spray tank, ensure that the spray tank is thoroughly clean.

PROLINE 480 SC Foliar Fungicide applied alone:

- Add one-half of the required amount of water to the spray or mixing tank and start agitation.
- Add the required quantity of **PROLINE 480 SC Foliar Fungicide** to the water and complete filling with water to the required total volume.
- Maintain agitation throughout mixing and spraying.
- PROLINE 480 SC Foliar Fungicide should be thoroughly dispersed prior to the addition of a non-ionic surfactant. PROLINE 480 SC Foliar Fungicide is recommended to be used with a registered non-ionic surfactant, such as Agral 90 or AgSurf, at 0.125% vol/vol.

Section 11: Pre-harvest Intervals

Crop	PHI (days)
Wheat (spring, durum and winter), Barley, Oats, Pearl Millet, Proso Millet, Rye, Triticale, Teosinte, Buckwheat	30
Canola, Rapeseed, Oriental Mustard, <i>Brassica carinata</i> , Flax (Linseed), Crambe, borage	36
Corn (field, sweet, popcorn)	14
Chickpea, Lentils	7
Soybean	20
Sugar Beet	7
Bushberry	7
Peanut	14
Cucurbits	7
Low-Growing Berries (except strawberries), Safflower, Sunflower	45

Section 12: Notices

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

For more information contact:

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB
T2C 3G3

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All other products mentioned are trademarks of their respective companies.

SAFETY DATA SHEET



PROLINE® 480 SC FOLIAR FUNGICIDE

Version 2.1 / CDN
102000014342

1/10
Revision Date: 03/01/2017
Print Date: 04/26/2018

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name PROLINE® 480 SC FOLIAR FUNGICIDE

Product code (UVP) 05984180

SDS Number 102000014342

Relevant identified uses of the substance or mixture and uses advised against

Use Fungicide

Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada

Responsible Department Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577

Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

This material is not hazardous under the criteria of Part 2 of the Hazardous Products Regulation.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.

No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Prothioconazole	178928-70-6	41.0
Glycerine	56-81-5	6.0

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SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable None known.

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

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Further information	Avoid contact with spilled product or contaminated surfaces. Evacuate personnel to safe areas. Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point	> 96 °C
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Isolate hazard area. Keep unauthorized people away. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations. Contaminated soil may have to be removed and disposed.

Additional advice Use personal protective equipment. If material is accidentally spilled, do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate exhaust ventilation.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

SAFETY DATA SHEET



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Print Date: 04/26/2018

Requirements for storage areas and containers

Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Protect from freezing.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Prothioconazole	178928-70-6	1.4 mg/m ³ (SK-ABS)		OES BCS*
Glycerine (Mist.)	56-81-5	10 mg/m ³ (TWA)	07 2009	CAD AB OEL
Glycerine (Mist.)	56-81-5	10 mg/m ³ (TWA)	09 2011	CAD BC OEL
Glycerine (Respirable mist.)	56-81-5	3 mg/m ³ (TWA)	09 2011	CAD BC OEL
Glycerine (Mist.)	56-81-5	10 mg/m ³ (TWA)	11 2010	CAD ON OEL
Glycerine (Mist.)	56-81-5	10 mg/m ³ (8 HR ACL)	05 2009	CAD SK OEL
Glycerine (Mist.)	56-81-5	20 mg/m ³ (15 MIN ACL)	05 2009	CAD SK OEL
Glycerine (Mist.)	56-81-5	10 mg/m ³ (TWA)	11 2011	OEL (QUE)

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection

Chemical resistant nitrile rubber gloves

Eye protection

Chemical resistant goggles must be worn.

Skin and body protection

Wear long-sleeved shirt and long pants and shoes plus socks.

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General protective measures Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	white to light beige
Physical State	suspension
Odor	slight characteristic
Odour Threshold	No data available
pH	ca. 6.8 - 7.2 at 100 % (20 °C)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	ca. 1.18 g/cm ³ at 20 °C
Evaporation rate	No data available
Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	dispersible
Minimum Ignition Energy	Not applicable
Decomposition temperature	Not applicable
Partition coefficient: n-octanol/water	Not applicable
Viscosity	800 - 1,200 cps at 25 °C
Flash point	> 96 °C
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity	
Thermal decomposition	Not applicable
Chemical stability	Stable under normal conditions.

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Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	freezing
Incompatible materials	No data available
Hazardous decomposition products	Hydrogen chloride (HCl) Hydrogen cyanide (hydrocyanic acid) Carbon monoxide Nitrogen oxides (NOx) Sulphur oxides

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Ingestion, Inhalation, Skin contact
Immediate Effects	
Eye	May cause mild irritation to eyes.
Skin	Harmful if absorbed through skin. May cause mild irritation to the skin.
Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.
Information on toxicological effects	
Acute oral toxicity	LD50 (female Rat) > 2,000 - < 5,000 mg/kg
Acute inhalation toxicity	LC50 (male/female combined Rat) > 1.6 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Highest attainable concentration. No deaths
Acute dermal toxicity	LD50 (male/female combined Rat) > 5,000 mg/kg
Skin irritation	slight irritation (Rabbit)
Eye irritation	Minimally irritating. (Rabbit)
Sensitisation	Non-sensitizing. (Guinea pig)

Assessment STOT Specific target organ toxicity – repeated exposure

Prothioconazole did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Prothioconazole was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Prothioconazole was not carcinogenic in lifetime feeding studies in rats and mice.

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ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Prothioconazole caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Prothioconazole is related to parental toxicity.

Assessment developmental toxicity

Prothioconazole caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Prothioconazole are related to maternal toxicity.

Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 1.83 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient prothioconazole.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 1.3 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient prothioconazole.
Toxicity to aquatic plants	IC50 (Raphidocelis subcapitata (freshwater green alga)) 2.18 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient prothioconazole.
Biodegradability	Prothioconazole: Not rapidly biodegradable
Koc	Prothioconazole: Koc: 1765; log Koc: < 3
Bioaccumulation	Prothioconazole: Bioconcentration factor (BCF) 19 Does not bioaccumulate.
Mobility in soil	Prothioconazole: Slightly mobile in soils
Environmental precautions	Do not apply directly to water, to areas where surface water is present

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or to intertidal areas below the mean high water mark.
Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.
Do not allow to get into surface water, drains and ground water.
Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product Dispose in accordance with all local, state/provincial and federal regulations.
Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.
Follow container label instructions for disposal of wastes generated during use in compliance with the product label.

Contaminated packaging Do not re-use empty containers.
Triple rinse containers.
Puncture container to avoid re-use.
Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning.
If burned, stay out of smoke.
Follow advice on product label and/or leaflet.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	3082
Labels	9
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PROTHIOCONAZOLE)

49CFR

Not dangerous goods / not hazardous material

IMDG

UN number	3082
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PROTHIOCONAZOLE SOLUTION)

IATA

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UN number	3082
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PROTHIOCONAZOLE SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Further Information	Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1. This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.
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SECTION 15: REGULATORY INFORMATION

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

Glycerine	56-81-5	MN, RI
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Canadian Regulations

Canadian Domestic Substance List

Glycerine	56-81-5
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Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

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Safe Drinking Water Act Maximum Contaminant Levels
None.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: The following sections have been revised: Section 5: Fire Fighting Measures.
Section 9: Physical and Chemical Properties.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 03/01/2017

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.



Bayer CropScience

****Booklet Label****

PROSARO 250 EC

FUNGICIDE
EMULSIFIABLE CONCENTRATE

GROUP	3	FUNGICIDE
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FOR CONTROL OR SUPPRESSION OF LISTED DISEASES IN WHEAT, BARLEY AND OATS

COMMERCIAL

DANGER – EYE IRRITANT
CAUTION - SKIN IRRITANT

REGISTRATION NUMBER 29821 PEST CONTROL PRODUCTS ACT

GUARANTEE:

Prothioconazole	125 g/L
Tebuconazole	125 g/L

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

NET CONTENTS: 6.5 to 324 L (BULK)

Product Information: 1-888-283-6847

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. S.E.
Calgary, Alberta T2C 3G3

In case of spills, poisoning or fire, telephone emergency response number
1-800-334-7577 (24 hours a day)



PROSARO 250 EC Fungicide

Table of Contents:

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SAFETY AND HANDLING

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For more information, contact:

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. S.E.
Calgary, Alberta T2C 3G3

GENERAL INFORMATION

Section 1: Notices

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

Section 2: The Product

PROSARO 250 EC Fungicide is a broad-spectrum systemic fungicide for the control or suppression of listed diseases on wheat, barley and oats.

SAFETY AND HANDLING

Section 3: Precautions, Protective Clothing & Equipment, and Re-entry Restriction

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Harmful if swallowed, inhaled or absorbed through the skin. Causes moderate eye irritation. Do NOT get in eyes. Avoid contact with skin, eyes, and clothing. May irritate the skin. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, or smoking. If product comes in contact with clothing, remove all contaminated clothing, wash skin with soap and water and dress in clean clothing. Launder applicator clothing separate from other laundry. DO NOT re-enter treated fields until 12 hours post-application. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.bayercropscience.ca

PROTECTIVE CLOTHING AND EQUIPMENT:

Wear coveralls over long pants, long-sleeved shirt, chemical resistant gloves and boots during mixing, loading, application, clean-up and repair activities. In addition, workers must wear safety goggles or a face shield during mixing, loading, clean-up and repair. Coveralls are not required during application within closed cabs or cockpits.

Section 4: First Aid and Toxicological Information
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FIRST AID:

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

- Treat symptomatically.
- Medical Personnel should contact Bayer's Medical Information Services, Toll-Free: 1-800-334-7577.

Section 5: Environmental Hazards

Toxic to birds, small wild animals, aquatic organisms and non-target plants. Observe buffer zones specified under DIRECTIONS FOR USE and APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. Do not apply to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Runoff is hazardous to aquatic organisms in neighboring areas. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. Tebuconazole is persistent and will carryover. It is recommended that any products containing tebuconazole not be used in areas treated with this product during the previous season. To reduce run off refer to the recommendations under "APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS".

Section 6: Storage

Storage:

- Do not contaminate water, food, or feed by storage or disposal.
- Keep away from fire or open flame or other sources of heat.
- Do not store at temperatures below freezing.
- If stored for 1 year or longer, shake well before using.
- Store the tightly closed container away from feeds, seeds, fertilizer, plants and foodstuffs.
- Do not use or store in or around the home.
- Keep in original container during storage.
- In case of fire, leaking or damaged containers, call toll free 1-800-334-7577.

Section 7: Disposal

Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Refillable Container: For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

Non-Returnable Container:

1. Triple or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

Disposal of Unused Spray Solution:

If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, NOT ON THE CROP, away from water supplies, ditches, and irrigation canals. Buffer zones indicated in the DIRECTIONS FOR USE must also be respected.

DIRECTIONS FOR USE

Introduction

PROSARO 250 EC Fungicide is a broad-spectrum systemic fungicide for control of a wide range of diseases on wheat (spring, winter and durum), barley and oats. PROSARO 250 EC Fungicide will protect the crop from yield and quality losses due to disease.

Section 8: Crop, Disease, Rate and Timing			
USE DIRECTIONS			
CROP	DISEASE	RATE (mL/ha)	REMARKS
Wheat, (spring, winter and durum)	Suppression of: Fusarium Head Blight (<i>Gibberella zeae</i> / <i>Fusarium graminearum</i>) Control of: Rust (Leaf, Stem and Stripe)(<i>Puccinia recondita</i> , <i>P. graminis</i> , <i>P. striiformis</i>) Leaf & Glume Blotch (<i>Septoria tritici</i> , <i>Stagonospora nodorum</i>) Tan Spot (<i>Pyrenophora tritici-repentis</i>) Powdery mildew (<i>Erysiphe graminis</i>)	800	For suppression of Fusarium Head Blight, apply PROSARO 250 EC Fungicide as a preventative spray within the time period from when at least 75% of the wheat heads on the main stem are fully emerged to when 50% of the heads on the main stem are in flower. Application at this timing will also control the listed leaf diseases. Apply by ground or aerial application equipment. For ground application, apply specified dosage in a minimum of 100 L of water per hectare. For aerial application, apply specified dosage in a minimum of 50 L of water per hectare.
Barley	Suppression of: Fusarium Head Blight (<i>Fusarium spp.</i>) Control of: Net Blotch (<i>Pyrenophora teres</i>) Spot Blotch (<i>Cochliobolus sativus</i>) Scald	800	For suppression of Fusarium head blight, apply PROSARO 250 EC Fungicide as a preventative spray within the time period when 70 to 100% of the barley main stem heads are fully emerged, to 3 days after full head emergence. Application at this timing will also control the listed leaf diseases. Apply by ground or aerial application equipment. For ground application, apply specified dosage in a minimum of 100 L of water per hectare. For aerial

	<p>(<i>Rhynchosporium secalis</i>)</p> <p>Leaf Blotch (<i>Septoria passerinii</i>)</p> <p>Leaf, Stem and Stripe Rusts (<i>Puccinia hordei</i>, <i>Puccinia graminis</i>, <i>Puccinia striiformis</i>)</p> <p>Powdery Mildew (<i>Erysiphe graminis</i>)</p>		application, apply specified dosage in a minimum of 50 L of water per hectare.
<u>Oats</u>	<p>Control of:</p> <p>Crown Rust (<i>Puccinia coronata</i>)</p> <p>Stem Rust(<i>Puccinia graminis</i>)</p> <p>Stagonospora (Septoria) leaf blotch and black stem (<i>Stagonospora avenae</i> syn. <i>Septoria avenae</i>)</p>	800	<p>Apply PROSARO 250 EC Fungicide as a preventive foliar spray when the earliest disease symptoms appear on the leaves and stems. Fields should be observed closely for early disease symptoms, particularly when susceptible varieties are planted and/or under prolonged conditions favorable for disease development.</p> <p>Apply by ground or aerial application equipment. For ground application, apply specified dosage in a minimum of 100 L of water per hectare. For aerial application, apply specified dosage in a minimum of 50 L of water per hectare.</p>

SEQUENTIAL APPLICATIONS IN WHEAT AND BARLEY:

Prosaro 250EC Fungicide may be applied sequentially after an application of Folicur 432F Foliar Fungicide or Folicur 250 EW Fungicide. Please refer to respective product labels for specific use directions, pertinent recommendations, restrictions and precautions.

Recommended Applications:

Application Timing/Crop	Minimum Interval between Applications and
-------------------------	---

Stage/Product/Product Rates for single application		Maximum Seasonal Application Rates	
Vegetative stage	Heading/Anthesis	Minimum Interval between applications	Maximum seasonal tebuconazole rate (g a.i./ha)
Folicur 432F 220-292 mL/ha (95-126 g tebuconazole/ha)	Prosaro 250 EC 800 mL/ha (100 g prothioconazole + 100 g tebuconazole)	7 days	226
Folicur 250 EW 375-500 mL/ha (93.8-125 g tebuconazole/ha)	Prosaro 250 EC 800 mL/ha (100 g prothioconazole + 100 g tebuconazole)	7 days	226

Resistance Management Advisory for Cereal Crops:

Repeated applications of standalone DMI fungicides should not be used on the same crop in one season against high risk pathogens, such as cereal powdery mildew, in areas of high disease pressure for that particular pathogen. Mixture products, tank-mixtures or alternation with fungicides having a different mode of action applied at effective rates have been shown to protect against the development of resistant forms of disease.

Section 9: Use Limitations

- A maximum of one application of PROSARO 250 EC Fungicide may be applied per crop season.
- Applications may not be made within 36 days of harvest.
- Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment with PROSARO 250 EC Fungicide.
- Straw cut after harvest may be fed or used for bedding.
- Do not enter treated fields for 12 hours after application.
- **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats. **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

- Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Buffer zones:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands). In addition to the buffer zones specified in the table below, users must also observe buffer zones specified under APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:
			Terrestrial Habitats
Field sprayer	Wheat (spring, winter and durum), Barley and Oats		1
Aerial	Wheat (spring, winter and durum), Barley and Oats	Fixed and rotary wing	15

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The spray drift buffer zones required for the protection of terrestrial habitats for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS:

OBSERVE THE FOLLOWING PRECAUTIONS WHEN SPRAYING IN THE VICINITY OF AQUATIC AREAS SUCH AS LAKES, RESERVOIRS, RIVERS, PERMANENT STREAMS, MARSHES OR NATURAL PONDS, AND ESTUARIES.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application

when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Do not cultivate within 3 metres of an aquatic area to allow growth of a vegetative filter strip.

Do not apply by ground or air within 30 metres of aquatic areas listed above.

The aquatic buffer zone of 30 meters **may not** be modified by the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

Rotational Crops:

Treated areas may be replanted with any crop specified on this label and soybean as soon as practical after the last application. For all other crops, do not plant back within 120 days of last application.

Section 10: Pre-harvest Intervals

<u>Crop</u>	<u>PHI</u>
Wheat (spring, winter and durum)	36 days
Barley	36 days
Oats	36 days

Section 11: Mixing Instructions

Mixing Instructions:

PROSARO 250 EC Fungicide must be applied with properly calibrated, clean equipment. Prior to adding PROSARO 250 EC Fungicide to the spray tank, ensure that the spray tank is thoroughly clean.

PROSARO 250 EC Fungicide applied alone:

- Add one-half of the required amount of water to the spray or mixing tank and start agitation.
- Add the required quantity of PROSARO 250 EC Fungicide to the water and complete filling with water to the required total volume.
- Maintain agitation throughout mixing and spraying.

Section 12: Application Precautions

GROUND APPLICATION:

1. Use well-maintained and calibrated conventional spray equipment, which provides adequate and uniform coverage.
2. Apply PROSARO 250 EC Fungicide in a minimum of 100 L water/ha.
3. Spray screens should be no finer than 50 mesh.
4. Ensure that the by-pass line discharges at the bottom of the tank to minimize foaming.
5. Maintain pressure at no less than 275 kPa to ensure good foliage penetration and coverage.
6. Provincial buffer zones that are greater than the buffer zones indicated in the DIRECTIONS FOR USE, Section 9, should be respected.
7. If spray mixture remains in the tank overnight, or for long periods during the day, agitate thoroughly prior to application.

AERIAL APPLICATION-GENERAL INFORMATION:

1. Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.
2. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment. If you have questions, call 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.
3. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.
4. Apply PROSARO 250 EC Fungicide in a minimum of 50 L of water/ha.
5. To ensure proper coverage and distribution and to minimize drift, check to see that swath width and droplet size are adequate, and that wind velocities are low.
6. Use mechanical flaggers only.

AERIAL APPLICATION-USE PRECAUTIONS:

1. Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage.
2. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial committee on Pest management and Pesticides.

AERIAL APPLICATION- OPERATOR PRECAUTIONS:

1. **DO NOT** allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.
2. It is desirable that the pilot has communication capabilities at each treatment site at the time of application.

3. The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.
4. All personnel on the job site must wash hands and face thoroughly before eating and drinking.
5. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.
6. Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.

Section 13: Resistance Management Recommendations

For resistance management, please note that PROSARO 250 EC Fungicide contains two Group 3 fungicides. Any fungal population may contain individuals naturally resistant to PROSARO 250 EC Fungicide and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of PROSARO 250 EC Fungicide or other Group 3 fungicides with products from different fungicide groups that control the same pathogens.
- Do not apply more than one application of PROSARO 250 EC Fungicide per season.
- Fungicide use should be based on an integrated pest management (IPM) program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological, and other chemical control practices.
- Monitor treated fungal populations for resistance development.
- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product and switch to another fungicide with a different target site of action, if available.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information and to report suspected resistance, contact a Bayer CropScience representative at 1-888-283-6847 or at bayercropscience.ca.

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For more information contact:

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. S.E.
Calgary, Alberta T2C 3G3

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SAFETY DATA SHEET



PROSARO XTR

Version 1.0 / CDN
102000028361

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Print Date: 01/30/2019

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name PROSARO XTR
Product code (UVP) 81776849
SDS Number 102000028361
PCP Registration No. 32824

Relevant identified uses of the substance or mixture and uses advised against

Use Fungicide
Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada
Responsible Department Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.
Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

Serious eye damage: Category 1
Skin sensitisation: Category 1B
Skin irritation, Reproductive toxicity: Category 2
Acute toxicity(Inhalation): Category 4

Labelling in accordance with Part 3 of the Hazardous Products Regulations



Signal word: Danger

Hazard statements

Causes serious eye damage.
May cause an allergic skin reaction.

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Causes skin irritation.
Suspected of damaging fertility or the unborn child.
Harmful if inhaled.

Precautionary statements

Wear protective gloves/protective clothing/eye protection/face protection.
Avoid breathing mist and spray.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Wash thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor/ physician.
IF ON SKIN: Wash with plenty of water/ soap.
If skin irritation or rash occurs: Get medical advice/ attention.
Specific treatment (see supplemental first aid instructions on this label).
Take off contaminated clothing and wash before reuse.
IF exposed or concerned: Get medical advice/ attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.
Store locked up.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Prothioconazole	178928-70-6	12.5
Tebuconazole	107534-96-3	12.5
Mefenpyr-diethyl	135590-91-9	3.13
N,N-Dimethyl decanamide	14433-76-2	56.3

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

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Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.
Most important symptoms and effects, both acute and delayed	
Symptoms	To date no symptoms are known.
Indication of any immediate medical attention and special treatment needed	
Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Water spray, Dry powder, Foam, Carbon dioxide (CO ₂)
Unsuitable	None known.

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point	151 °C
Auto-ignition temperature	330 °C / 626 °F
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in original container and out of the reach of children, preferably in a locked storage area. Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Prothioconazole	178928-70-6	1.4 mg/m ³ (SK-ABS)		OES BCS*
Tebuconazole	107534-96-3	0.2 mg/m ³		OES BCS*

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		(SK-ABS)		
Mefenpyr-diethyl	135590-91-9	10 mg/m ³ (TWA)		OES BCS*

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection

Chemical resistant nitrile rubber gloves

Eye protection

Safety glasses with side-shields

Skin and body protection

Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	yellow to brown
Physical State	Liquid clear to slightly turbid
Odor	aromatic
Odour Threshold	No data available
pH	3.5 - 5.5 at 1 % (23 °C) (deionized water)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	1.00 g/cm ³ at 20 °C
Evaporation rate	No data available
Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	No data available
Minimum Ignition Energy	Not applicable
Decomposition temperature	No data available
Partition coefficient: n-octanol/water	Not applicable

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Viscosity	No data available
Flash point	151 °C
Auto-ignition temperature	330 °C / 626 °F
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113

SECTION 10: STABILITY AND REACTIVITY

Reactivity	
Thermal decomposition	No data available
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	No data available
Incompatible materials	No data available
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Skin contact, Ingestion, Inhalation
Immediate Effects	
Eye	Corrosive - causes irreversible eye damage. Causes eye irritation.
Skin	Irritating to skin. Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.
Information on toxicological effects	
Acute oral toxicity	LD50 (Rat) > 2,000 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 2.06 mg/l Exposure time: 4 h
Acute dermal toxicity	LD50 (Rat) > 2,000 mg/kg
Skin irritation	Moderate skin irritation. (Rabbit)

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Eye irritation	Severe eye irritation. (Rabbit)
Sensitisation	Sensitising (Mouse) OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment STOT Specific target organ toxicity – repeated exposure

Prothioconazole did not cause specific target organ toxicity in experimental animal studies.
Tebuconazole did not cause specific target organ toxicity in experimental animal studies.
Mefenpyr-diethyl did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Prothioconazole was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Tebuconazole was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Mefenpyr-diethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Prothioconazole was not carcinogenic in lifetime feeding studies in rats and mice.
Tebuconazole caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver. The mechanism of tumour formation is not considered to be relevant to man.
Mefenpyr-diethyl was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Prothioconazole caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Prothioconazole is related to parental toxicity.
Tebuconazole caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Tebuconazole is related to parental toxicity.
Mefenpyr-diethyl did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Prothioconazole caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Prothioconazole are related to maternal toxicity.
Tebuconazole caused developmental toxicity only at dose levels toxic to the dams. Tebuconazole caused an increased incidence of post implantation losses, an increased incidence of non-specific malformations.
Mefenpyr-diethyl caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Mefenpyr-diethyl are related to maternal toxicity.

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Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 1.83 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient prothioconazole.
	LC50 (Oncorhynchus mykiss (rainbow trout)) 4.4 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient tebuconazole.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 1.3 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient prothioconazole.
	EC50 (Daphnia magna (Water flea)) 2.79 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient tebuconazole.
Chronic toxicity to aquatic invertebrates	NOEC (Daphnia (water flea)): 0.01 mg/l Exposure time: 21 d The value mentioned relates to the active ingredient tebuconazole.
Toxicity to aquatic plants	IC50 (Raphidocelis subcapitata (freshwater green alga)) 2.18 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient prothioconazole.
	EC50 (Skeletonema costatum) 0.046 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient prothioconazole.
	NOEC (Skeletonema costatum) 0.0073 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient prothioconazole.
	EC50 (Raphidocelis subcapitata (freshwater green alga)) 3.8 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient tebuconazole.
	EC50 (Lemna gibba (gibbous duckweed)) 0.237 mg/l Growth rate; Exposure time: 7 d The value mentioned relates to the active ingredient tebuconazole.
Biodegradability	Prothioconazole: Not rapidly biodegradable Tebuconazole: Not rapidly biodegradable Mefenpyr-diethyl:

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	Not rapidly biodegradable
Koc	Prothioconazole: Koc: 1765 Tebuconazole: Koc: 769 Mefenpyr-diethyl: Koc: 625
Bioaccumulation	Prothioconazole: Bioconcentration factor (BCF) 19 Does not bioaccumulate. Tebuconazole: Bioconcentration factor (BCF) 35 - 59 Does not bioaccumulate. Mefenpyr-diethyl: Bioconcentration factor (BCF) 232 Does not bioaccumulate.
Mobility in soil	Prothioconazole: Slightly mobile in soils Tebuconazole: Slightly mobile in soils Mefenpyr-diethyl: Slightly mobile in soils
Environmental precautions	Do not allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Dispose in accordance with all local, state/provincial and federal regulations. Follow container label instructions for disposal of wastes generated during use in compliance with the product label.
Contaminated packaging	Do not re-use empty containers. Consult state and local regulations regarding the proper disposal of container. Follow advice on product label and/or leaflet.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	3082
Labels	9
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TEBUCONAZOLE, PROTHIOCONAZOLE)

49CFR

Not dangerous goods / not hazardous material

IMDG

UN number	3082
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Class 9
Packaging group III
Marine pollutant YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(TEBUCONAZOLE, PROTHIOCONAZOLE SOLUTION)

IATA

UN number 3082
Class 9
Packaging group III
Environm. Hazardous Mark YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(TEBUCONAZOLE, PROTHIOCONAZOLE SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Further Information Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1.
This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.

SECTION 15: REGULATORY INFORMATION

PCP Registration No. 32824

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

None.

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Canadian Regulations
Canadian Domestic Substance List
None.

Environmental
CERCLA
None.
Clean Water Section 307 Priority Pollutants
None.
Safe Drinking Water Act Maximum Contaminant Levels
Tebuconazole 107534-96-3

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 3 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 3 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: New Safety Data Sheet.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 06/02/2017

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are

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Bayer CropScience

****Booklet Label****

PROSARO XTR

FUNGICIDE
EMULSIFIABLE CONCENTRATE

GROUP	3	FUNGICIDE
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FOR CONTROL OR SUPPRESSION OF LISTED DISEASES IN WHEAT, BARLEY AND OATS,

COMMERCIAL

DANGER – CORROSIVE TO EYES AND SKIN
CAUTION - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

REGISTRATION NUMBER 32824 PEST CONTROL PRODUCTS ACT

GUARANTEE:

Prothioconazole	125 g/L
Tebuconazole	125 g/L

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

NET CONTENTS: 6.5 to 324 L (BULK)

Product Information: 1-888-283-6847

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. S.E.
Calgary, Alberta T2C 3G3

In case of spills, poisoning or fire, telephone emergency response number
1-800-334-7577 (24 hours a day)



PROSARO XTR Fungicide

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For more information, contact:

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. S.E.
Calgary, Alberta T2C 3G3

GENERAL INFORMATION

Section 1: Notices

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

Section 2: The Product

PROSARO XTR Fungicide is a broad-spectrum systemic fungicide for the control or suppression of listed diseases on wheat, barley and oats.

SAFETY AND HANDLING

Section 3: Precautions, Protective Clothing & Equipment, and Re-entry Restriction

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Harmful if swallowed, inhaled or absorbed through the skin. Causes irreversible eye damage. Severely irritating to the eye. Do NOT get in eyes. Avoid contact with skin, eyes, and clothing. May irritate the skin. Avoid contact with skin. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, or smoking. If product comes in contact with clothing, remove all contaminated clothing, wash skin with soap and water and dress in clean clothing. Launder applicator clothing separate from other laundry. DO NOT re-enter treated fields until 12 hours post-application. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.bayercropscience.ca

PROTECTIVE CLOTHING AND EQUIPMENT:

Wear coveralls over long pants, long-sleeved shirt, chemical-resistant gloves, socks, chemical-resistant footwear, goggles or faceshield during mixing, loading, application, clean-up and repair activities. Coveralls, chemical-resistant gloves and protective eyewear are not required during application within closed cabs or cockpits.

Section 4: First Aid and Toxicological Information
--

FIRST AID:

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

- Treat symptomatically.
- Medical Personnel should contact Bayer's Medical Information Services, Toll-Free: 1-800-334-7577.

Section 5: Environmental Hazards

Toxic to birds, small wild animals, aquatic organisms and non-target plants. Observe buffer zones specified under DIRECTIONS FOR USE and APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS. As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. Do not apply to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Runoff is hazardous to aquatic organisms in neighboring areas. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body. Tebuconazole is persistent and will carryover. It is recommended that any products containing tebuconazole not be used in areas treated with this product during the previous season. To reduce run off refer to the recommendations under "APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS".

Section 6: Storage

Storage:

- Do not contaminate water, food, or feed by storage or disposal.
- Keep away from fire or open flame or other sources of heat.
- Do not store at temperatures below freezing.

- If stored for 1 year or longer, shake well before using.
- Store the tightly closed container away from feeds, seeds, fertilizer, plants and foodstuffs.
- Do not use or store in or around the home.
- Keep in original container during storage.
- In case of fire, leaking or damaged containers, call toll free 1-800-334-7577.

Section 7: Disposal

Recyclable Container Disposal: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Refillable Container: For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

Non-Returnable Container:

1. Triple or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

Disposal of Unused, Unwanted Product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

Disposal of Unused Spray Solution:

If any spray solution remains in the tank after spraying is finished, it should be sprayed on the perimeter of the area just sprayed, NOT ON THE CROP, away from water supplies, ditches, and irrigation canals. Buffer zones indicated in the DIRECTIONS FOR USE must also be respected.

DIRECTIONS FOR USE

Introduction

PROSARO XTR Fungicide is a broad-spectrum systemic fungicide for control of a wide range of diseases on wheat (spring, winter and durum), barley and oats, PROSARO XTR Fungicide will protect the crop from yield and quality losses due to disease.

Section 8: Crop, Disease, Rate and Timing			
USE DIRECTIONS			
CROP	DISEASE	RATE (mL/ha)	REMARKS
Wheat, (spring, winter and durum)	Suppression of: Fusarium Head Blight (<i>Gibberella zeae</i> / <i>Fusarium graminearum</i>) Control of: Rust (Leaf, Stem and Stripe)(<i>Puccinia recondita</i> , <i>P. graminis</i> , <i>P. striiformis</i>) Leaf & Glume Blotch (<i>Septoria tritici</i> , <i>Stagonospora nodorum</i>) Tan Spot (<i>Pyrenophora tritici-repentis</i>) Powdery mildew (<i>Erysiphe graminis</i>)	800	For suppression of Fusarium Head Blight, apply PROSARO XTR Fungicide as a preventative spray within the time period from when at least 75% of the wheat heads on the main stem are fully emerged to when 50% of the heads on the main stem are in flower. Application at this timing will also control the listed leaf diseases. Apply by ground or aerial application equipment. For ground application, apply specified dosage in a minimum of 100 L of water per hectare. For aerial application, apply specified dosage in a minimum of 50 L of water per hectare.
Barley	Suppression of: Fusarium Head Blight (<i>Fusarium spp.</i>) Control of: Net Blotch (<i>Pyrenophora teres</i>) Spot Blotch (<i>Cochliobolus sativus</i>) Scald	800	For suppression of Fusarium head blight, apply PROSARO XTR Fungicide as a preventative spray within the time period when 70 to 100% of the barley main stem heads are fully emerged, to 3 days after full head emergence. Application at this timing will also control the listed leaf diseases. Apply by ground or aerial application equipment. For ground application, apply specified dosage in a minimum of 100 L of water per hectare. For aerial

	<p>(<i>Rhynchosporium secalis</i>)</p> <p>Leaf Blotch (<i>Septoria passerinii</i>)</p> <p>Leaf, Stem and Stripe Rusts (<i>Puccinia hordei</i>, <i>Puccinia graminis</i>, <i>Puccinia striiformis</i>)</p> <p>Powdery Mildew (<i>Erysiphe graminis</i>)</p>		application, apply specified dosage in a minimum of 50 L of water per hectare.
<u>Oats</u>	<p>Control of:</p> <p>Crown Rust (<i>Puccinia coronata</i>)</p> <p>Stem Rust (<i>Puccinia graminis</i>)</p> <p>Stagonospora (Septoria) leaf blotch and black stem (<i>Stagonospora avenae</i> syn. <i>Septoria avenae</i>)</p>	800	<p>Apply PROSARO XTR Fungicide as a preventive foliar spray when the earliest disease symptoms appear on the leaves and stems. Fields should be observed closely for early disease symptoms, particularly when susceptible varieties are planted and/or under prolonged conditions favorable for disease development.</p> <p>Apply by ground or aerial application equipment. For ground application, apply specified dosage in a minimum of 100 L of water per hectare. For aerial application, apply specified dosage in a minimum of 50 L of water per hectare.</p>

SEQUENTIAL APPLICATIONS IN WHEAT AND, BARLEY,:

Prosaro XTR Fungicide may be applied sequentially after an application of Folicur 432F Foliar Fungicide or Folicur 250 EW Fungicide. Please refer to respective product labels for specific use directions, pertinent recommendations, restrictions and precautions.

Recommended Applications:

Application Timing/Crop	Minimum Interval between Applications
-------------------------	---------------------------------------

Stage/Product/Product Rates for single application		and Maximum Seasonal Application Rates	
Vegetative stage	Heading/Anthesis	Minimum Interval between applications	Maximum seasonal tebuconazole rate (g a.i./ha)
Folicur 432F 220-292 mL/ha (95-126 g tebuconazole/ha)	PROSARO XTR 800 mL/ha (100 g prothioconazole + 100 g tebuconazole)	7 days	226
Folicur 250 EW 375-500 mL/ha (93.8-125 g tebuconazole/ha)	PROSARO XTR 800 mL/ha (100 g prothioconazole + 100 g tebuconazole)	7 days	226

Resistance Management Advisory for Cereal Crops:

Repeated applications of standalone DMI fungicides should not be used on the same crop in one season against high risk pathogens, such as cereal powdery mildew, in areas of high disease pressure for that particular pathogen. Mixture products, tank-mixtures or alternation with fungicides having a different mode of action applied at effective rates have been shown to protect against the development of resistant forms of disease.

Section 9: Use Limitations

- A maximum of one application of PROSARO XTR Fungicide may be applied per crop season.
- Applications may not be made within 36 days of harvest.
- Do not allow livestock to graze or feed green forage to livestock prior to 6 days after treatment with PROSARO XTR Fungicide.
- Straw cut after harvest may be fed or used for bedding.
- Do not enter treated fields for 12 hours after application.
- **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats. **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
- Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

- Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Buffer zones:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands). In addition to the buffer zones specified in the table below, users must also observe buffer zones specified under APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:
			Terrestrial Habitats
Field sprayer	Wheat (spring, winter and durum), Barley and Oats,		1
Aerial	Wheat (spring, winter and durum), Barley and Oats,	Fixed and rotary wing	15

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The spray drift buffer zones required for the protection of terrestrial habitats for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

APPLICATION IN FIELDS ADJACENT TO AQUATIC AREAS:

OBSERVE THE FOLLOWING PRECAUTIONS WHEN SPRAYING IN THE VICINITY OF AQUATIC AREAS SUCH AS LAKES, RESERVOIRS, RIVERS, PERMANENT STREAMS, MARSHES OR NATURAL PONDS, AND ESTUARIES.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Do not cultivate within 3 metres of an aquatic area to allow growth of a vegetative filter strip.

Do not apply by ground or air within 30 metres of aquatic areas listed above.

The aquatic buffer zone of 30 meters **may not** be modified by the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

Rotational Crops:

Treated areas may be replanted with any crop specified on this label and soybean as soon as practical after the last application. For all other crops, do not plant back within 120 days of last application.

Section 10: Pre-harvest Intervals

<u>Crop</u>	<u>PHI</u>
Wheat (spring, winter and durum)	36 days
Barley	36 days
Oats	36 days

Section 11: Mixing Instructions

Mixing Instructions:

PROSARO XTR Fungicide must be applied with properly calibrated, clean equipment. Prior to adding PROSARO XTR Fungicide to the spray tank, ensure that the spray tank is thoroughly clean.

PROSARO XTR Fungicide applied alone:

- Add one-half of the required amount of water to the spray or mixing tank and start agitation.
- Add the required quantity of PROSARO XTR Fungicide to the water and complete filling with water to the required total volume.
- Maintain agitation throughout mixing and spraying.

Section 12: Application Precautions

GROUND APPLICATION:

1. Use well-maintained and calibrated conventional spray equipment, which provides adequate and uniform coverage.
2. Apply PROSARO XTR Fungicide in a minimum of 100 L water/ha.

3. Spray screens should be no finer than 50 mesh.
4. Ensure that the by-pass line discharges at the bottom of the tank to minimize foaming.
5. Maintain pressure at no less than 275 kPa to ensure good foliage penetration and coverage.
6. Provincial buffer zones that are greater than the buffer zones indicated in the DIRECTIONS FOR USE, Section 9, should be respected.
7. If spray mixture remains in the tank overnight, or for long periods during the day, agitate thoroughly prior to application.

AERIAL APPLICATION-GENERAL INFORMATION:

1. Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.
2. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment. If you have questions, call 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.
3. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.
4. Apply PROSARO XTR Fungicide in a minimum of 50 L of water/ha.
5. To ensure proper coverage and distribution and to minimize drift, check to see that swath width and droplet size are adequate, and that wind velocities are low.
6. Use mechanical flaggers only.

AERIAL APPLICATION-USE PRECAUTIONS:

1. Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage.
2. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial committee on Pest management and Pesticides.

AERIAL APPLICATION- OPERATOR PRECAUTIONS:

1. **DO NOT** allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.
2. It is desirable that the pilot has communication capabilities at each treatment site at the time of application.
3. The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

4. All personnel on the job site must wash hands and face thoroughly before eating and drinking.
5. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.
6. Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.

Section 13: Resistance Management Recommendations

For resistance management, please note that PROSARO XTR Fungicide contains two Group 3 fungicides. Any fungal population may contain individuals naturally resistant to PROSARO XTR Fungicide and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of PROSARO XTR Fungicide or other Group 3 fungicides with products from different fungicide groups that control the same pathogens.
- Do not apply more than one application of PROSARO XTR Fungicide per season.
- Fungicide use should be based on an integrated pest management (IPM) program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological, and other chemical control practices.
- Monitor treated fungal populations for resistance development.
- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product and switch to another fungicide with a different target site of action, if available.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information and to report suspected resistance, contact a Bayer CropScience representative at 1-888-283-6847 or at bayercropscience.ca.

For more information contact:

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. S.E.
Calgary, Alberta T2C 3G3

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name PROSARO XTR
Product code (UVP) 81776849
SDS Number 102000028361
PCP Registration No. 32824

Relevant identified uses of the substance or mixture and uses advised against

Use Fungicide
Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada
Responsible Department Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.
Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

Serious eye damage: Category 1
Skin sensitisation: Category 1B
Skin irritation, Reproductive toxicity: Category 2
Acute toxicity(Inhalation): Category 4

Labelling in accordance with Part 3 of the Hazardous Products Regulations



Signal word: Danger

Hazard statements

Causes serious eye damage.
May cause an allergic skin reaction.

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Causes skin irritation.
Suspected of damaging fertility or the unborn child.
Harmful if inhaled.

Precautionary statements

Wear protective gloves/protective clothing/eye protection/face protection.
Avoid breathing mist and spray.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Wash thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor/ physician.
IF ON SKIN: Wash with plenty of water/ soap.
If skin irritation or rash occurs: Get medical advice/ attention.
Specific treatment (see supplemental first aid instructions on this label).
Take off contaminated clothing and wash before reuse.
IF exposed or concerned: Get medical advice/ attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.
Store locked up.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Prothioconazole	178928-70-6	12.5
Tebuconazole	107534-96-3	12.5
Mefenpyr-diethyl	135590-91-9	3.13
N,N-Dimethyl decanamide	14433-76-2	56.3

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

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Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.
Most important symptoms and effects, both acute and delayed	
Symptoms	To date no symptoms are known.
Indication of any immediate medical attention and special treatment needed	
Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Water spray, Dry powder, Foam, Carbon dioxide (CO ₂)
Unsuitable	None known.

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point	151 °C
Auto-ignition temperature	330 °C / 626 °F
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in original container and out of the reach of children, preferably in a locked storage area. Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Prothioconazole	178928-70-6	1.4 mg/m ³ (SK-ABS)		OES BCS*
Tebuconazole	107534-96-3	0.2 mg/m ³		OES BCS*

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		(SK-ABS)		
Mefenpyr-diethyl	135590-91-9	10 mg/m ³ (TWA)		OES BCS*

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection Chemical resistant nitrile rubber gloves

Eye protection Safety glasses with side-shields

Skin and body protection Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	yellow to brown
Physical State	Liquid clear to slightly turbid
Odor	aromatic
Odour Threshold	No data available
pH	3.5 - 5.5 at 1 % (23 °C) (deionized water)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	1.00 g/cm ³ at 20 °C
Evaporation rate	No data available
Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	No data available
Minimum Ignition Energy	Not applicable
Decomposition temperature	No data available
Partition coefficient: n-octanol/water	Not applicable

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Viscosity	No data available
Flash point	151 °C
Auto-ignition temperature	330 °C / 626 °F
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113

SECTION 10: STABILITY AND REACTIVITY

Reactivity	
Thermal decomposition	No data available
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	No data available
Incompatible materials	No data available
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Skin contact, Ingestion, Inhalation
Immediate Effects	
Eye	Corrosive - causes irreversible eye damage. Causes eye irritation.
Skin	Irritating to skin. Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.
Information on toxicological effects	
Acute oral toxicity	LD50 (Rat) > 2,000 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 2.06 mg/l Exposure time: 4 h
Acute dermal toxicity	LD50 (Rat) > 2,000 mg/kg
Skin irritation	Moderate skin irritation. (Rabbit)

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Eye irritation	Severe eye irritation. (Rabbit)
Sensitisation	Sensitising (Mouse) OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment STOT Specific target organ toxicity – repeated exposure

Prothioconazole did not cause specific target organ toxicity in experimental animal studies.
Tebuconazole did not cause specific target organ toxicity in experimental animal studies.
Mefenpyr-diethyl did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Prothioconazole was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Tebuconazole was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Mefenpyr-diethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Prothioconazole was not carcinogenic in lifetime feeding studies in rats and mice.
Tebuconazole caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver. The mechanism of tumour formation is not considered to be relevant to man.
Mefenpyr-diethyl was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Prothioconazole caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Prothioconazole is related to parental toxicity.
Tebuconazole caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Tebuconazole is related to parental toxicity.
Mefenpyr-diethyl did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Prothioconazole caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Prothioconazole are related to maternal toxicity.
Tebuconazole caused developmental toxicity only at dose levels toxic to the dams. Tebuconazole caused an increased incidence of post implantation losses, an increased incidence of non-specific malformations.
Mefenpyr-diethyl caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Mefenpyr-diethyl are related to maternal toxicity.

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Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 1.83 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient prothioconazole.
	LC50 (Oncorhynchus mykiss (rainbow trout)) 4.4 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient tebuconazole.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 1.3 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient prothioconazole.
	EC50 (Daphnia magna (Water flea)) 2.79 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient tebuconazole.
Chronic toxicity to aquatic invertebrates	NOEC (Daphnia (water flea)): 0.01 mg/l Exposure time: 21 d The value mentioned relates to the active ingredient tebuconazole.
Toxicity to aquatic plants	IC50 (Raphidocelis subcapitata (freshwater green alga)) 2.18 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient prothioconazole.
	EC50 (Skeletonema costatum) 0.046 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient prothioconazole.
	NOEC (Skeletonema costatum) 0.0073 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient prothioconazole.
	EC50 (Raphidocelis subcapitata (freshwater green alga)) 3.8 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient tebuconazole.
	EC50 (Lemna gibba (gibbous duckweed)) 0.237 mg/l Growth rate; Exposure time: 7 d The value mentioned relates to the active ingredient tebuconazole.
Biodegradability	Prothioconazole: Not rapidly biodegradable Tebuconazole: Not rapidly biodegradable Mefenpyr-diethyl:

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	Not rapidly biodegradable
Koc	Prothioconazole: Koc: 1765 Tebuconazole: Koc: 769 Mefenpyr-diethyl: Koc: 625
Bioaccumulation	Prothioconazole: Bioconcentration factor (BCF) 19 Does not bioaccumulate. Tebuconazole: Bioconcentration factor (BCF) 35 - 59 Does not bioaccumulate. Mefenpyr-diethyl: Bioconcentration factor (BCF) 232 Does not bioaccumulate.
Mobility in soil	Prothioconazole: Slightly mobile in soils Tebuconazole: Slightly mobile in soils Mefenpyr-diethyl: Slightly mobile in soils
Environmental precautions	Do not allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Dispose in accordance with all local, state/provincial and federal regulations. Follow container label instructions for disposal of wastes generated during use in compliance with the product label.
Contaminated packaging	Do not re-use empty containers. Consult state and local regulations regarding the proper disposal of container. Follow advice on product label and/or leaflet.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	3082
Labels	9
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TEBUCONAZOLE, PROTHIOCONAZOLE)

49CFR

Not dangerous goods / not hazardous material

IMDG

UN number	3082
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PROSARO XTR

Version 1.0 / CDN
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Revision Date: 06/02/2017
Print Date: 01/30/2019

Class 9
Packaging group III
Marine pollutant YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(TEBUCONAZOLE, PROTHIOCONAZOLE SOLUTION)

IATA

UN number 3082
Class 9
Packaging group III
Environm. Hazardous Mark YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(TEBUCONAZOLE, PROTHIOCONAZOLE SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Further Information Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1.
This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.

SECTION 15: REGULATORY INFORMATION

PCP Registration No. 32824

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

None.

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Canadian Regulations
Canadian Domestic Substance List
None.

Environmental
CERCLA
None.
Clean Water Section 307 Priority Pollutants
None.
Safe Drinking Water Act Maximum Contaminant Levels
Tebuconazole 107534-96-3

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 3 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 3 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: New Safety Data Sheet.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 06/02/2017

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are

SAFETY DATA SHEET



PROSARO XTR

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Print Date: 01/30/2019

registered trademarks of Bayer.

GROUP	3	11	FUNGICIDES
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QUILT® Fungicide

COMMERCIAL

SUSPENSION

For Use in Controlling Diseases on Legume Vegetables, Cereals, Mint, Canola and Blueberries

ACTIVE INGREDIENTS:

Azoxystrobin 75 g/L
Propiconazole 125 g/L

Contains 1,2-benzisothiazolin-3-one at 0.029 to 0.04% and 2-bromo-2-nitropropane-1,3-diol at 0.03% as preservatives.

**READ THE LABEL AND ATTACHED BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**



WARNING: EYE AND SKIN IRRITANT

REGISTRATION NO: **28328**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **1 L to 1000 L**

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

Label

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

IF SWALLOWED, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF IN EYES, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

IF INHALED, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

No specific symptoms of poisoning are known for this product. Treat symptomatically.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED. Causes eye irritation. DO NOT get in eyes. May irritate the skin. Avoid contact with skin. Wash with soap and water after handling, and before eating, drinking or smoking. Remove clothing immediately if pesticide gets inside. Wash contaminated clothing, separately from household laundry, before re-use. Do not wear contaminated shoes. Wash the exterior of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Wear long pants, a long sleeve shirt, shoes and socks and chemical-resistant gloves during mixing/loading, application, clean-up and repair activities. Wear protective goggles or face shield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used.

Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

All users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

DO NOT allow entry into treated area for 12 hours following application. See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

Application is limited to agricultural crops only when there is low risk of drift to areas of human habitation or activity such as houses, cottages, schools and recreational areas, taking into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported outside of Canada and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-877-SYNGENTA/1-877-964-3682.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

Azoxystrobin is persistent and will carryover. It is recommended that this product not be used in areas treated with azoxystrobin during the previous season.

The properties of azoxystrobin indicate it may leach to ground water. The use of QUILT® Fungicide may result in contamination of groundwater, particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland.

STORAGE

Keep in original container, tightly closed, during storage. Store in a cool, dry, well ventilated area away from feed and foodstuffs, and out of the reach of children and animals. To prevent

contamination store this product away from food or feed.

Do not store below 0 °C.

SPILL CLEAN-UP

Wear appropriate protective equipment (gloves, glasses, apron) when attempting to clean up the spill. If the container is leaking, secure leak and place the container into a drum or heavy gauge plastic bag. Contact Syngenta Canada Inc. (See EMERGENCY NUMBER) for further information.

For spills and leaks - contain the liquid with dikes of inert material (soil, clay, kitty litter, etc.). Absorb the spill onto inert material and shovel into a sealable waste container.

On hard surfaces - sprinkle spill area with detergent and scrub in a small quantity of water with a coarse broom. Let stand 10 minutes then absorb onto an inert material and shovel into the waste container.

On soil - remove the top 15 cm of soil in the spill area and replace with fresh soil. Dispose of all waste including scrub brush in accordance with provincial requirements.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

CONTAINER DISPOSAL OR REFILLING:

For returnable containers:

DO NOT reuse this container for any other purpose. This empty container may be returned to the point of purchase (distributor/dealer) for disposal.

For refillable containers:

DO NOT reuse this container for any other purpose. For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product.

For recyclable containers:

DO NOT reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

QUILT® is a trademark of a Syngenta Group Company.

GROUP	3	11	FUNGICIDES
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QUILT® Fungicide

COMMERCIAL

SUSPENSION

For Use in Controlling Diseases on Legume Vegetables, Cereals, Mint, Canola and Blueberries

ACTIVE INGREDIENTS:

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Propiconazole 125 g/L

Contains 1,2-benzisothiazolin-3-one at 0.029 to 0.04% and 2-bromo-2-nitropropane-1,3-diol at 0.03% as preservatives.

**READ THE LABEL AND ATTACHED BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**



WARNING: EYE AND SKIN IRRITANT

REGISTRATION NO: **28328**
PEST CONTROL PRODUCTS ACT

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

Pamphlet

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

IF SWALLOWED, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

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IF INHALED, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

No specific symptoms of poisoning are known for this product. Treat symptomatically.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED. Causes eye irritation. DO NOT get in eyes. May irritate the skin. Avoid contact with skin. Wash with soap and water after handling, and before eating, drinking or smoking. Remove clothing immediately if pesticide gets inside. Wash contaminated clothing, separately from household laundry, before re-use. Do not wear contaminated shoes. Wash the exterior of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Wear long pants, a long sleeve shirt, shoes and socks and chemical-resistant gloves during mixing/loading, application, clean-up and repair activities. Wear protective goggles or face shield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used.

Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

All users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

DO NOT allow entry into treated area for 12 hours following application. See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

Application is limited to agricultural crops only when there is low risk of drift to areas of human habitation or activity such as houses, cottages, schools and recreational areas, taking into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported outside of Canada and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA/1-877-964-3682.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

Azoxystrobin is persistent and will carryover. It is recommended that this product not be used in areas treated with azoxystrobin during the previous season.

The properties of azoxystrobin indicate it may leach to ground water. The use of QUILT® Fungicide may result in contamination of groundwater, particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland.

STORAGE

Keep in original container, tightly closed, during storage. Store in a cool, dry, well ventilated area away from feed and foodstuffs, and out of the reach of children and animals. To prevent

contamination store this product away from food or feed.

Do not store below 0 °C.

SPILL CLEAN-UP

Wear appropriate protective equipment (gloves, glasses, apron) when attempting to clean up the spill. If the container is leaking, secure leak and place the container into a drum or heavy gauge plastic bag. Contact Syngenta Canada Inc. (See EMERGENCY NUMBER) for further information.

For spills and leaks - contain the liquid with dikes of inert material (soil, clay, kitty litter, etc.). Absorb the spill onto inert material and shovel into a sealable waste container.

On hard surfaces - sprinkle spill area with detergent and scrub in a small quantity of water with a coarse broom. Let stand 10 minutes then absorb onto an inert material and shovel into the waste container.

On soil - remove the top 15 cm of soil in the spill area and replace with fresh soil. Dispose of all waste including scrub brush in accordance with provincial requirements.

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For recyclable containers:

DO NOT reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

**IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)**

PRODUCT INFORMATION

QUILT Fungicide is a broad spectrum, preventative fungicide with systemic and curative properties recommended for the control of important plant diseases in Crop Group 6 – Legume Vegetables including soybeans, Crop Group 15 – Cereals and blueberries. QUILT Fungicide may be applied as a foliar spray in alternating spray programs or in tank mixes with other crop protection products. All applications should be made according to the use directions that follow.

GENERAL USE PRECAUTIONS

DO NOT apply QUILT Fungicide through irrigation equipment.

DO NOT apply QUILT Fungicide through any type of ultra-low volume (ULV) spray system (less than 30 litres per hectare).

DO NOT use in nurseries, greenhouses or landscape plantings.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of waste.

A restricted entry interval (REI) of 1 day is required for workers hand-harvesting and detasseling treated corn.

Under certain conditions conducive to extended infection periods, use another registered fungicide for additional applications.

ROTATIONAL CROP RESTRICTIONS

Please see the following table for the crop rotational restrictions:

Rotational Crops	Planting Time From Last Application of Azoxystrobin- and Propiconazole-containing Products
All crops with Azoxystrobin/Propiconazole registered uses	0 days
All other crops Intended for Food and Feed	105 days
Oats and rye	45 days

Phytotoxicity

QUILT Fungicide demonstrates some phytotoxic effects when mixed with products that are formulated as Emulsifiable Concentrate. These effects are enhanced if applications are made under cool, cloudy conditions and these conditions remain for several days following application. In addition, adjuvants that contain some form of silicone may contribute to phytotoxicity.

INTEGRATED PEST MANAGEMENT

QUILT Fungicide should be integrated into an overall disease and pest management strategy whenever the use of a fungicide is required. Cultural practices known to reduce disease development should be followed. The DIRECTIONS FOR USE section in this label identifies specific IPM recommendations for each crop. Consult your local agricultural authorities for additional IPM strategies established for your area.

DIRECTIONS FOR USE

GROUND APPLICATION

It is important to check the physical compatibility of tank mixed pesticide products in a small volume prior to filling the sprayer. Check the compatibility of tank mixes containing Quilt Fungicide using a jar test with proportionate amounts of mix partners, and water, before mixing in the spray tank.

MIXING INSTRUCTIONS:

1. Ensure that the sprayer interior is clean, then fill the spray tank with $\frac{1}{2}$ the required amount of water and engage gentle agitation. Good agitation is indicated by a rippling or rolling action on the surface of the water.
2. Add any WG or DF formulation mix partners and agitate to ensure complete mixing.
3. Add Quilt Fungicide (SE) and agitate to ensure complete mixing.
4. Add any additional SC formulation mix partners and agitate to ensure complete mixing.
5. Add any EC formulation mix partners and agitate to ensure complete mixing.
6. Fill the tank to $\frac{3}{4}$ the required amount of water.
7. Add any solution (SN or SL) formulation mix partners and agitate to ensure complete mixing.
8. Finish filling the sprayer with water, maintaining good agitation.
9. After any break in spraying operations, agitate thoroughly before spraying again.
10. Spray the pesticide suspension the same day as mixing.
11. **DO NOT** mix, load or clean spray equipment where there is a potential to contaminate wells or aquatic systems.

When using chemical handling equipment to fill the sprayer, the following additional recommendations apply:

- WG and DF formulations are preferentially batch mixed.
- SC, SN, and SL formulations may be inducted or batch mixed.
- EC formulations are preferentially batch mixed.

SPRAYER CLEAN-UP:

Before Spraying:

- Prior to using Quilt Fungicide, ensure that the spray tank, lines and filter are thoroughly clean.

After Spraying:

- Thoroughly clean application equipment immediately after spraying. **DO NOT** allow Quilt Fungicide residue to dry within the spray tank
- When using tank mixes, consult the tank-mix partner label for additional clean-up instructions.
- The following recommendations are provided:

1. Drain and flush tank walls, boom and all hoses for ten minutes with a clean water/detergent mixture. Rinse with clean water. **DO NOT** clean the sprayer near desirable vegetation, wells or other water sources.
2. Remove all nozzles and screens and wash separately.
3. Dispose of all rinsate in accordance with provincial regulations.

EQUIPMENT SPECIFIC INSTRUCTIONS

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply spray droplets which are smaller than the American Society of Agricultural and Biological Engineers medium classification ASABE Standard S-572.1). Boom height must be 60 cm or less above the crop or ground.

SPRAYING INSTRUCTIONS:

1. Water Volume: Apply in a minimum spray volume of 45 L/ha OR the volume given in the crop and pest specific instructions tabulated below, whichever is LARGER.
2. Sprayer Agitation: Use a jet agitator or liquid sparge tub which recirculates 10% or more of the tank per minute. **DO NOT** use an air sparger.
3. Pump: Screens should be used to protect the pump and prevent clogging. Use 16 mesh or *coarser* screens on the suction side of the pump. **DO NOT** place a screen in the recirculation line. Use 50 mesh or *coarser* screens between the pump and boom.
4. Spray Nozzles: 80° or 110° drift reducing flat fan (e.g. those with a pre-orifice or turbulence chamber) or air induction nozzles are recommended. Use 50 mesh nozzle screens. **DO NOT** use flood type nozzles, controlled droplet application equipment, spray foils or hollow cone nozzles.
5. Pressure: As recommended by the nozzle manufacturer to achieve ASABE medium sized droplets.
6. Apply at uniform speed and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to avoid potential crop injury from over application.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). **DO NOT** apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. **DO NOT** spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

AERIAL APPLICATION

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions, and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. When no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ground Crew Precautions

DO NOT allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication

capabilities at each treatment site at the time of application.

All ground crew and the mixer/loaders must wear chemical resistant gloves, long-sleeved shirt and long pants, shoes and socks when mixing/loading, and during clean-up and repair activities. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing field sprayer label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

It is important to check the physical compatibility of tank mixed pesticide products in a small volume prior to filling the sprayer. Check the compatibility of tank mixes containing Quilt Fungicide using a jar test with proportionate amounts of mix partners, and water, before mixing in the spray tank.

MIXING INSTRUCTIONS:

Mixing this product directly in the aircraft hopper **IS NOT** recommended. The use of chemical handling or managing equipment to load the hopper **IS** recommended. This product **MAY BE** inducted into a hopper which is prefilled with water or when the product and water are mixed prior to entering the hopper. This product **MAY BE** batch mixed and pumped into the hopper. In all cases the chemical handling equipment and hopper interior must be clean prior to use.

NOTE: WG and DF formulations are preferentially batch mixed.

NOTE: SC, SN, and SL formulations may be inducted or batch mixed.

NOTE: EC formulations are preferentially batch mixed.

It is **NOT** recommended to combine solid (WG or DF) formulations with liquid tank mix partners within a single batch. Batch mix WG or DF formulations first, pump into the hopper, and then add liquid tank mix partners by induction or as an additional batch mix. When tank mixing multiple products, follow the mixing order outlined below:

1. Pump water into the hopper to at least $\frac{1}{4}$ to $\frac{1}{2}$ of the desired spray volume. Engage hopper circulation, if possible.
2. Thoroughly batch mix any WG or DF formulation mix partners and agitate to ensure complete mixing. Pump into the hopper
3. Induct or thoroughly batch mix Quilt Fungicide (SE) and any additional SE or SC formulations.
4. Thoroughly batch mix any EC formulation mix partners. EC formulations may be added to the batch from Step 3, if desired.
5. Induct or thoroughly batch mix any solution (SN or SL) formulation mix partners. SN/SL formulations may be added to the batch from Step 3, if desired.
6. Pump batch mixed SC, EC, and/or SN/SL products into the hopper.
7. Finish filling the hopper with water.
8. If it was not possible to engage hopper agitation in Step 1, do so as soon as possible once airborne.
9. Spray the pesticide suspension the same day as mixing.
10. **DO NOT** mix, load or clean equipment where there is a potential to contaminate wells or aquatic systems.

EQUIPMENT CLEAN-UP:

Before Spraying:

- Prior to using Quilt Fungicide, ensure that the hopper, chemical handling equipment, lines and filter are thoroughly cleaned.

After Spraying:

- Thoroughly clean application equipment immediately after spraying. **DO NOT** allow Quilt Fungicide residue to dry within application equipment.
- When using tank mixes, consult the tank-mix partner label for additional clean-up instructions.
- The following recommendations are provided:
 1. Drain and flush tank walls, boom and all hoses for ten minutes with a clean water/detergent mixture. Rinse with clean water. **DO NOT** clean application equipment near desirable vegetation, wells or other water sources.
 2. Remove all nozzles and screens and wash separately.
 3. Dispose of all rinsate in accordance with provincial regulations.

Pilot Precautions

Read and understand the entire label before using this product. Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides. Suggested conditions for good aerial application are moderate temperatures (less than 25°C) and moderate relative humidity (greater than 40%). Light winds at altitude of 3-16 km/h are preferred, with 3-9 km/h considered optimal. Ensure uniform application and a uniform spray with minimum potential for drift. To avoid streaked, uneven or overlapped application, use appropriate marking technology. GPS based marking is preferred.

DO NOT apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply spray droplets which are smaller than the American Society of Agricultural and Biological Engineers medium classification (ASABE Standard S-572.1). The nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing or rotor span in order to reduce drift caused by turbulent wingtip vortices.

SPRAYING INSTRUCTIONS

1. Water Volume: Apply in a minimum spray volume of 45 L/ha OR the volume given in the crop and pest specific instructions tabulated below, whichever is LARGER.
2. Spray Nozzles: Use only ASABE medium or coarse nozzles rated as delivering droplets of volume median diameter of 300 microns or greater.
3. Pressure: As recommended by the nozzle manufacturer to achieve ASABE coarse or medium sized droplets.
4. Ensure hopper agitation is engaged whenever possible during flight.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). **DO NOT** apply during periods of dead calm or when wind velocity

and direction pose a risk of spray drift. **DO NOT** spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				Terrestrial habitat
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer*	Beans, peas, soybeans, chickpeas, corn, wheat, oats, barley, rye, triticale, mint, high and low bush blueberries		1	0	1	1	1
Aerial	Beans, corn, oats, wheat, barley, triticale, mint, canola, low bush blueberries	Fixed wing	1	0	3	1	20
		Rotary wing	1	0	1	1	20

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-87-SYNGENTA (1-877-964-3682) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

SPRAY DRIFT MANAGEMENT

ATTENTION

QUILT Fungicide is extremely phytotoxic to certain apple varieties.

AVOID SPRAY DRIFT. Extreme care must be used to prevent injury to apple trees (and apple fruit). DO NOT spray QUILT Fungicide where spray drift may reach apple trees.

AVOID spraying when conditions favor drift beyond area intended for application. Conditions which may contribute to drift include thermal inversion, wind speed and direction, sprayer nozzle/pressure combinations, spray droplet size, etc.

DO NOT use spray equipment which has been previously used to apply QUILT Fungicide to spray apple trees. Even trace amounts can cause unacceptable phytotoxicity to certain apple and crabapple varieties.

AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.

USE DIRECTIONS

LEGUME VEGETABLES (Crop Group 6) INCLUDING SOYBEANS

Soybeans

Edible-podded legume vegetables - Any succulent cultivar of edible podded bean (*Phaseolus* spp.) and any succulent cultivar of edible-podded pea (*Pisum* spp.): Bean (*Phaseolus* spp.) (includes runner bean, snap bean, wax bean); bean (*Vigna* spp.) (includes asparagus bean, Chinese longbean, moth bean, yardlong bean); jackbean; pea (*Pisum* spp.) (includes dwarf pea, edible-podded pea, snow pea, sugar snap pea); pigeon pea; soybean (immature seed); sword bean.

Succulent shelled pea and bean - Any succulent shelled cultivar of bean (*Phaseolus* spp.) and garden pea (*Pisum* spp.): Bean (*Phaseolus* spp.) (includes lima bean, green); broad bean (succulent); bean (*Vigna* spp.) (includes black-eyed pea, cowpea, southern pea); pea (*Pisum* spp.) (includes English pea, garden pea, green pea); pigeon pea.

Dried shelled pea and bean - Any dried cultivar of bean (*Phaseolus* spp.) and dried cultivar of pea (*Pisum* spp.): Dried cultivars of bean (*Lupinus* spp.) (includes grain lupin, sweet lupin, white lupin, and sweet white lupin); (*Vigna* spp.) (includes adzuki beans); (*Phaseolus* spp.) (includes field bean, kidney bean, lima bean (dry), navy bean, pinto bean, tepary bean, mung bean, rice bean, southern bean, urd bean); broad bean (dry); chickpea; guar; lablab bean; lentil; pea (*Pisum* spp.) (includes field pea); pigeon pea.

LEGUME VEGETABLES (Crop Group 6) INCLUDING SOYBEANS	
DISEASE	Asian (Soybean) Rust (<i>Phakopsora pachyrhizi</i>)
CROPS	All Crop Group 6 legume vegetables listed above, and soybean
PRODUCT RATE (L/ha)	1.0 - 1.5
APPLICATION TIMING	<p>Make the first application of QUILT Fungicide at the first sign of disease. Apply the high rate only under conditions of high disease pressures. A second application at 14 days interval may be needed if conditions persist. It is important to protect the developing pod of soybean and podded legume vegetables.</p> <p>Good spray coverage and canopy penetration are important for best results.</p> <p>Apply in a minimum of 45 L of water per hectare.</p>
DISEASE	Powdery Mildew (<i>Microsphaera diffusa</i> , <i>Erysiphe pisi</i> , <i>E. polygoni</i>)
CROPS	All Crop Group 6 legume vegetables listed above, and soybean
PRODUCT RATE (L/ha)	1.0
APPLICATION TIMING	<p>Make the first application of QUILT Fungicide at the first sign of disease. A second application at 14 days interval may be needed if conditions persist.</p> <p>Good spray coverage and canopy penetration are important for best results.</p> <p>Apply in a minimum of 45 L of water per hectare.</p>
DISEASE	Anthracnose (<i>Colletotrichum truncatum</i>)
CROPS	Lentils and soybean
PRODUCT RATE (L/ha)	1.0 - 1.5
APPLICATION TIMING	<p>The first application must be applied before disease is established and no later than the onset of flowering. Make the first application of QUILT Fungicide at the first sign of disease. Apply the high rate only under conditions of high disease pressures. A second application at 14 days interval may be needed if conditions persist. It is important to protect the developing pod of soybean and podded legume vegetables.</p> <p>Good spray coverage and canopy penetration are important for best results.</p> <p>Apply in a minimum of 45 L of water per hectare.</p>
DISEASE	Mycosphaerella blight (<i>Mycosphaerella pinodes</i>)
CROPS	Pea
PRODUCT RATE (L/ha)	1.0 - 1.5
APPLICATION TIMING	<p>Make the first application of QUILT Fungicide at the first sign of disease. Apply the high rate only under conditions of high disease pressures. A second application at 14 days interval may be needed if conditions persist. It is important to protect the developing pod of soybean and podded legume vegetables.</p> <p>Good spray coverage and canopy penetration are important for best results.</p> <p>Apply in a minimum of 45 L of water per hectare.</p>

LEGUME VEGETABLES (Crop Group 6) INCLUDING SOYBEANS	
DISEASE	Frogeye Leaf Spot (<i>Cercospora sojina</i>)
CROPS	Soybean
PRODUCT RATE (L/ha)	1.0 - 1.5
APPLICATION TIMING	Make the first application of QUILT Fungicide at growth stage R3 (early pod set) and 14 days later at approximately growth stage R5.
DISEASE SUPPRESSED	White mold (<i>Sclerotinia sclerotiorum</i>)
CROPS	Soybean
PRODUCT RATE (L/ha)	1.5
APPLICATION TIMING	Begin applications at the R1 (early bloom) to R2 (full bloom) stage of development and, if needed, again 10- to 14-days later at early pod formation (R3). Apply in sufficient water to obtain adequate coverage of foliage. Spray volumes to be used vary with amount of plant growth. For best performance use spray volumes that range from 200 to 600 litres per hectare depending on plant growth.

Restrictions:

- 1 .APPLY A MAXIMUM OF 2 APPLICATIONS OF QUILT FUNGICIDE PER SEASON.
 2. Do not apply within 30 days of harvest for crop subgroup 6C (dry legume vegetables) and soybeans. Do not apply within 15 days of harvest for crop subgroup 6A (edible podded legume vegetables) and 6B (succulent shelled legume vegetables).
 3. Do not make more than one application to soybean hay and dry pea hay. Do not apply within 14 days of harvest of soybean hay and dry pea hay.
 4. Do not feed dried pea vines to livestock.
 5. Not all members of the legume vegetable group have been tested for efficacy and phytotoxicity at the recommended label rates and QUILT Fungicide should be used at the discretion of the user. QUILT Fungicide may be applied by air or ground application equipment. QUILT is most effective when applied and allowed to dry before a rainfall.
- For dry beans especially it is recommended to test a small area before applying QUILT Fungicide to entire field.

QUILT FUNGICIDE TANK MIX WITH MATADOR®120EC INSECTICIDE FOR USE ON SOYBEANS AND OTHER LEGUME VEGETABLES (CROP GROUP 6)

QUILT Fungicide can be tank mixed with MATADOR 120EC Insecticide for foliar disease and insect control. Apply QUILT Fungicide at a rate of 1.0 - 1.5 L/ha in a tank mix with MATADOR 120EC Insecticide at a rate of 83-233 mL/ha for control of soybean aphid on soybean and at a rate of 83 mL/ha for the rest of the crops in Crop Group 6. Refer to both the QUILT Fungicide or MATADOR 120EC Insecticide labels for diseases and insects controlled, specific application instructions and precautions. Pests and crops must be at the correct stage as specified on the QUILT Fungicide or MATADOR 120EC Insecticide label. DO NOT apply more than 2 applications per season of this tank mix. DO NOT make more than one application to soybean hay and dry pea hay of this tank mix per season. PHI 30 days of harvest for crop subgroup 6C (dry legume vegetables) and soybeans. PHI 15 days for crop subgroup 6A (edible podded legume vegetables) and 6B (succulent shelled legume vegetables). DO NOT apply within 14 days of harvest of soybean hay and dry pea hay of this tank mix per season. DO NOT graze or harvest treated forage, straw or hay for livestock feed. Not all members of the legume vegetable group have been tested for efficacy and phytotoxicity at the recommended label rates, and should be used at the discretion of the user. This tank mix may be applied by ground or air application equipment. Apply in at least 100 L of water per hectare for ground application and 45 L of water per hectare for aerial application.

CEREALS	
CROPS	Barley
DISEASE	Barley net blotch (<i>Pyrenophora teres</i>)
PRODUCT RATE (L/ha)	0.5*-1.0
APPLICATION TIMING	At first sign of disease starting at the two leaf stage (G.S. 12- 23) Where a rate range is indicated, use the higher rate if there is a history of high disease pressures in the field and/or field conditions favour disease development.
CROPS	Wheat
DISEASE	Tan spot (<i>Pyrenophora tritici-repentis</i>), Septoria leaf spot (<i>Septoria</i> sp.)
PRODUCT RATE (L/ha)	0.5*-1.0
APPLICATION TIMING	At first sign of disease starting at the two leaf stage (G.S. 12- 23) Where a rate range is indicated, use the higher rate if there is a history of high disease pressures in the field and/or field conditions favour disease development.
CROPS	Barley, Oats
DISEASE	Barley net blotch (<i>Pyrenophora teres</i>)
PRODUCT RATE (L/ha)	0.75
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (G.S. 29-55). Good spray coverage and canopy penetration are important for best results.
CROPS	Barley, Rye
DISEASE	Barley scald (<i>Rhynchosporium secalis</i>)
PRODUCT RATE (L/ha)	0.75
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (G.S. 29-55). Good spray coverage and canopy penetration are important for best results.
CROPS	Barley
DISEASE	Barley leaf rust (<i>Puccinia hordei</i>)
PRODUCT RATE (L/ha)	1.0
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (G.S. 29-55). Good spray coverage and canopy penetration are important for best results.
CROPS	Wheat, Barley, Rye, Oats, Triticale
DISEASE	Septoria leaf spot (<i>Septoria</i> sp.)
PRODUCT RATE (L/ha)	0.75
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (G.S. 29-55). Good spray coverage and canopy penetration are important for best results.
CROPS	Wheat, Barley, Rye, Triticale
DISEASE	Tan spot (<i>Pyrenophora tritici-repentis</i>)
PRODUCT RATE (L/ha)	0.75
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (G.S. 29-55). Good spray coverage and canopy penetration are important for best results.

CEREALS	
CROPS	Wheat, Barley, Rye
DISEASE	Stripe rust (<i>Puccinia striiformis</i>)
PRODUCT RATE (L/ha)	0.75 - 1.0
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (G.S. 29-55). Good spray coverage and canopy penetration are important for best results. Where a rate range is indicated, use the higher rate if there is a history of high disease pressures in the field and/or field conditions favour disease development.
CROPS	Wheat
DISEASE	Wheat leaf rust (<i>Puccinia triticina</i>)
PRODUCT RATE (L/ha)	0.75 - 1.0
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (G.S. 29-55). Good spray coverage and canopy penetration are important for best results. Where a rate range is indicated, use the higher rate if there is a history of high disease pressures in the field and/or field conditions favour disease development.
CROPS	Oats
DISEASE	Crown Rust (<i>Puccinia coronata</i> var. <i>avenae</i>)
PRODUCT RATE (L/ha)	0.75 – 1.0
APPLICATION TIMING	Apply once between stem elongation and half-head emergence. Good spray coverage and canopy penetration are important for best results. Where a rate range is indicated, use the higher rate if there is a history of high disease pressures in the field and/or field conditions favour disease development
<p>*Suppression only at rates less than 0.75 L/ha</p> <p>Specific Use Restrictions: DO NOT make more than two applications per season. DO NOT apply within 45 days of harvest for grain and straw (45 day PHI). DO NOT make more than one application for forage and hay. DO NOT harvest within 30 days for forage and hay (30 day PHI) Not all of these cereal crops have been tested for efficacy and phytotoxicity at the recommended label rates and QUILT Fungicide should be used at the discretion of the user. QUILT Fungicide may be applied by air or ground equipment. Under certain environmental conditions, tank mixes of QUILT plus herbicides (especially those containing bromoxynil) and/or fertilizers may cause crop injury.</p> <p>GROUND APPLICATION: Apply specified rates in a minimum of 100 L of water per hectare.</p> <p>AERIAL APPLICATION: Apply specified rates in a minimum of 45 L of water per hectare.</p>	

CORN	
CROPS	Field corn, Sweet corn (including Seed Production), Popcorn (including Seed Production)
DISEASES	Rust (<i>Puccinia sorghi</i>) Northern Corn Leaf Blight (<i>Setosphaeria turcicum</i>) Southern Corn Leaf Blight (<i>Cochliobolus heterostrophus</i>) Eye Spot (<i>Aureobasidium zeae</i>) Grey Leaf Spot (<i>Cercospora zeae-maydis</i>)
PRODUCT RATE (L/ha)	0.75 - 1
APPLICATION TIMING	Make first application at the first sign of disease, followed by a second application 14 days after the first, if environmental conditions are favourable for disease development. Good spray coverage and canopy penetration are important for best results. Use the low rate under low to moderate disease pressure. Use the high rate only under conditions of severe disease pressure.
DISEASES SUPPRESSED	Anthracoze Leaf Blight (<i>Colletotrichum graminicola</i>)
PRODUCT RATE (L/ha)	1
APPLICATION TIMING	Make first application at the first sign of disease, followed by a second application 14 days after the first, if environmental conditions are favourable for disease development. Good spray coverage and canopy penetration are important for best results.

Specific Use Restrictions:

1. DO NOT apply within 14 days for grain (14 day PHI).
 2. DO NOT apply within 30 days of harvest for forage (30 day PHI).
 3. DO NOT apply to sweet corn within 14 days of harvest (14 day PHI).
 4. DO NOT apply more than two applications of QUILT Fungicide per season.
 5. QUILT Fungicide may be applied by air or ground equipment.
- GROUND APPLICATION: Apply specified rates in a minimum of 100 L of water per hectare.
AERIAL APPLICATION: Apply specified rates in a minimum of 45 L of water per hectare.

QUILT FUNGICIDE TANK MIXED WITH MATADOR 120EC INSECTICIDE FOR USE ON WHEAT, BARLEY, OATS AND CORN (FIELD, SWEET AND SEED)

QUILT Fungicide can be tank mixed with MATADOR 120EC Insecticide for foliar disease and insect control on cereal crops. Refer to the QUILT Fungicide, MATADOR 120EC Insecticide labels for diseases and insects controlled as well as specific application instructions and precautions. Pests and crops must be at the correct stage as specified on the QUILT Fungicide, MATADOR 120EC Insecticide labels.

The tank mix of QUILT Fungicide and MATADOR 120EC Insecticide can be applied by ground or air. Apply in at least 100 L of water per hectare for ground application and 45 L of water per hectare for aerial application.

CORN: Do not make more than two applications of this tank mix per season. Allow 14 days between treatments.

Do not apply to field corn and field corn grown for seed after brown silk. Do not apply within 30 days of harvest for forage. Do not apply to sweet corn within 14 days of harvest.

CANOLA	
CROPS	Canola
DISEASE	Virulent Blackleg (<i>Leptosphaeria maculans</i>)
PRODUCT RATE (L/ha)	1.0
APPLICATION TIMING	Apply during the rosette stage between 2nd true leaf and bolting
<p>Specific Use Restrictions: DO NOT make more than one application per season. DO NOT apply to canola 30 days before harvest (30 day PHI). QUILT Fungicide is not a substitute for good management practices. For optimum control of Blackleg, plant seed treated with a seed treatment recommended for the control of seed borne Blackleg, followed by a foliar application of QUILT Fungicide. GROUND APPLICATION: Apply specified rates in a minimum of 100 L of water per hectare. AERIAL APPLICATION: Apply specified rates in a minimum of 45 L of water per hectare.</p>	

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Syngenta Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Syngenta Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the Buyer and User assumes all risks related to performance and crop tolerance arising, and agree to hold Syngenta Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

Mint	
CROPS	Mint, Peppermint, Spearmint, Susceptible mint hybrids
DISEASES	Powdery mildew (<i>Erysiphe</i> spp), Rust (<i>Puccinia menthae</i>)
PRODUCT RATE (L/ha)	1.0
APPLICATION TIMING	Begin applications when the plants are 5-10 cm high or when conditions become favourable for disease development. Make a second application 14 days after the first application.
<p>Specific Use Restrictions: Do not apply within 7 days of harvest. Do not apply more than two applications of QUILT Fungicide per season. Do not apply more than 2.0 L/ha of QUILT Fungicide per season. QUILT Fungicide may be applied by air or ground equipment.</p> <p>GROUND APPLICATION: Apply specified rates in a minimum of 185 L of water per hectare. AERIAL APPLICATION: Apply specified rates in a minimum of 45 L of water per hectare.</p>	

BLUEBERRIES	
CROPS	Blueberries (low bush and high bush)
DISEASES	Control of Rust (<i>Thekopsora minima</i>) Suppression of Septoria Leaf Spot (<i>Septoria</i> spp.) and Valdensinia Leaf Spot (<i>Valdensinia heterodoxa</i>)
PRODUCT RATE (L/ha)	1
APPLICATION TIMING	Apply at the first sign of disease in the spout year. After the initial application, one additional application may be made 10-14 days afterwards if conditions remain favourable for continued or increased disease development making no more than two applications per year on low bush blueberries. Use a minimum of 200 L per hectare of water or an appropriate water volume to provide full coverage.
CROPS	Blueberries (low bush and high bush)
DISEASE	Control of mummyberry (<i>Monilinia vaccinii-corymbosi</i>)
PRODUCT RATE (L/ha)	1
APPLICATION TIMING	For lowbush blueberries, apply the first application at or near flower bud swelling. A second application can be made at leaf bud swelling, making no more than two applications per year on low bush blueberries. For highbush blueberries apply the first application at or near flower bud swelling. A second application can be made at leaf bud swelling. If conditions remain favourable for disease development, a third application at pink bloom and a fourth application 7 to 10 days later at early bloom may be applied, making no more than four applications per year on high bush blueberries. Do not apply by aerial application to highbush blueberries. Ground or aerial applications may be used for lowbush blueberries. For ground application, use a minimum of 200L per hectare of water or an appropriate water volume to provide full coverage. For aerial application, use a minimum of 50L per hectare of water.

BLUEBERRIES	
CROPS	Blueberries (low bush)
DISEASE	Control of monilinia blight (<i>Monilinia vaccinii-corymbosi</i>)
PRODUCT RATE (L/ha)	1
APPLICATION TIMING	In the fruiting year for low bush blueberries apply the first application when flower bud scales first appear and make a second application 10 days later. Use ground application or aerial application equipment, making no more than two applications per year on low bush blueberries. Use a minimum of 200 L of water per hectare if applying by ground equipment; use 40-50 L of water per hectare if applying by air.
CROPS	Blueberries (low bush and high bush)
DISEASE	Control of anthracnose (<i>Colletotrichum acutatum</i>)
PRODUCT RATE (L/ha)	1
APPLICATION TIMING	Make the first application during early bloom. A second application may be made 7 to 10 days later. A third application can be made if conditions remain favourable for disease development making no more than three applications per year. Use a minimum of 200 L per hectare of water or an appropriate water volume to provide full coverage.
Specific Use Restrictions:	
<ol style="list-style-type: none"> 1. The last application must be made 30 days prior to harvest (30 day PHI). 2. DO NOT apply more than 4 applications of 4.0 L/ha of Quilt to any blueberry crop per year. 3. DO NOT apply more than 2 applications per year on low bush blueberries for control of rust, mummyberry, septoria leaf spot, Valdensinia leaf spot and monilinia blight. 4. DO NOT apply more than 4 applications per year on high bush blueberries. 5. For highbush blueberries only apply by ground application. 	

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that QUILT Fungicide is a mixture of Group 3 (propiconazole) and Group 11 (azoxystrobin) fungicides. Any fungal population may contain individuals naturally resistant to QUILT Fungicide and other Group 3 or Group 11 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay fungicide resistance:

DO NOT exceed the total number of applications of QUILT Fungicide per season per crop as stated in label.

Follow the specific crop recommendations that limit the total number of sprays on a crop and the required alternations with fungicides from other resistance management groups.

In situations requiring multiple sprays, develop season long spray programs for Group 11 (QoI) fungicides. The program should meet the goal of no more than 1/3 of the total sprays per season, when a Group 11 fungicide is used as a solo product, or 1/2 the total sprays when a Group 11 fungicide is used in a mixture. Programs that include both solo Group 11 products and/or mixes containing Group 11 products should be no more than 1/2 the total sprays.

Where possible, rotate the use of QUILT Fungicide or other Group 3 and 11 fungicides with different fungicide groups that control the same pathogens.

DO NOT apply sequential treatments of QUILT Fungicide, or other fungicides in the same Fungicide Group, in a season. DO NOT apply at rates lower than recommended on the label.

Use tank mixtures with fungicides from a different group when such use is permitted.

Fungicide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.

Where possible, make use of predictive disease models to effectively time fungicide applications.

Monitor treated fungal populations for resistance development. Notify Syngenta Canada Inc. if reduced sensitivity of the pathogen to QUILT Fungicide is suspected.

If disease continues to progress after treatment with this product, DO NOT increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, to which pathogen resistance has not developed.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.

For further information or to report suspected resistance, contact company representatives at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

Application Limitation and Preharvest Interval (PHI) Summary

Crop	PHI Interval	Maximum number of applications per year
Soybeans and dry legume vegetables	30 days	2
Succulent podded and shelled legume vegetables	15 days	2
Soybean hay, dry pea hay	14 days	1
Grain & Straw: wheat, barley, oats, triticale, rye	45 days	2
Forage and Hay: wheat, barley, oats, triticale, rye	30 days	1
Forage: corn	30 days	2
Field corn, sweet corn (including seed production), popcorn (including seed production)	14 days	2
Canola	30 days	1
Mint (peppermint and spearmint and susceptible mint hybrids)	7 days	2
Blueberries (high bush)	30 days	4
Blueberries (low bush)	30 days	3

MATADOR® and QUILT® are trademarks of a Syngenta Group Company.

SECTION 1: PRODUCT INFORMATION

Product Identifier: QUILT® FUNGICIDE
Formulation Number: A13705V
Registration Number: 28328 (Pest Control Products Act)
Product Use: Fungicide. Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3

SDS prepared by: Department of Regulatory & Biological Assessment, Syngenta Canada Inc.
For further information, contact: 1-87-SYNGENTA (1-877-964-3682)

In Case of Emergency, Call: 1-800-327-8633 (FAST MED)

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with UN GHS Version 5.

Hazard Classification(s): Acute Toxicity (Inhalation) – Category 4
 Acute Toxicity (Oral) – Category 4
 Eye Irritation – Category 2A
 Reproductive Toxicity – Category 2
 Skin Irritation – Category 3

Hazard Symbol(s):



Signal Word: WARNING

Hazard Statement(s): H302 – Harmful if swallowed.
 H316 – Causes mild skin irritation.
 H319 – Causes serious eye irritation.
 H332 – Harmful if inhaled.
 H361 – Suspected of damaging fertility or the unborn child.

Precautionary Statement(s):

Prevention: P201 – Obtain special instructions before use.
 P202 – Do not handle until all safety precautions have been read and understood.
 P261 – Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264 – Wash thoroughly after handling.
 P270 – Do not eat, drink or smoke when using this product.
 P271 – Use only outdoors or in a well-ventilated area.
 P280 – Wear protective gloves/protective clothing/eye protection/face protection.

Response: P301+P312 – IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
 P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308+P313 – IF exposed or concerned: Get medical advice/attention.
 P312 – Call a POISON CENTER/doctor if you feel unwell.
 P330 – Rinse mouth.
 P332+P313 – If skin irritation occurs: Get medical advice/attention.
 P337+P313 – If eye irritation persists: Get medical advice/attention.

Storage: P405 – Store locked up.

Disposal: P501 – Dispose of contents/containers to an approved waste disposal plant.

Other Hazards Which do not Result in GHS Classification: To avoid risk to human health and the environment, comply with the instructions for use. Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS
--

Chemical Name	Common Name	CAS Number	Average % by weight
Octan-1-ol	1-octanol	111-87-5	10 – 20
1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole	Propiconazole	60207-90-1	11.7
Methyl-(α E)-2-[6-(2-cyanophenoxy)-4-pyrimidinyl]oxy- α -(methoxymethylene) benzeneacetate	Azoxystrobin	131860-33-8	7
Polyethylene glycol mono (tristyrylphenols) ether	Ethoxylated tristyrylphenols	99734-09-5	1 – 5

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Safety Data Sheet with you when calling Syngenta, a poison control centre or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [1-800-327-8633 (1-800-FASTMED)], for further information.

Eye Contact: Flush eyes with clean water, holding eyelids apart for a minimum of 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eyes. Call Syngenta, a poison control centre or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

Skin Contact: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with running water for a minimum of 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

Inhalation: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

Ingestion: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to do so. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

Most Important Symptoms/Effects, Acute and Delayed:

Harmful if swallowed or inhaled.

Causes serious eye irritation.

Causes mild skin irritation.

Suspected of damaging fertility or the unborn child.

Indication of Immediate Medical Attention and Special Treatment:

There is no specific antidote.

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Suitable (and Unsuitable) Extinguishing Media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist. Cool closed containers exposed to fire with water spray. Do not use a solid water stream as it may scatter and spread the fire.

Specific Hazards Arising from the Product: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Special Protective Equipment and Precautions for Fire-Fighters: Wear full protective clothing and self-contained breathing apparatus. Evacuate non-essential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water run-off can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Control the spill at its source. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Use adequate ventilation and equipment and wear clothing as described in Section 8 and/or the product label.

Environmental Precautions: Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.

Methods and Materials for Containment and Cleaning Up: Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or seep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into a compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours, dust or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Conditions for Safe Storage, Including Any Incompatibilities: Store in original container in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Refer to the product label for specific storage recommendations, including minimum storage temperature and freeze/thaw stability. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL AND/OR ON-FARM APPLICATIONS.

Control Parameters:

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
1-octanol	Not established	Not established	50 ppm TWA****	No	Not established
Propiconazole	Not established	Not established	5 mg/m ³ TWA***	No	Not established
Propylene glycol	Not established	Not established	10 mg/m ³ TWA AIHA WEEL**** 50 ppm (155 mg/m ³) TWA (total vapour & particulates) (ON)	No	Yes
Azoxystrobin	Not established	Not established	2 mg/m ³ TWA***	No	Not established
Ethoxylated tristyrylphenols	Not established	Not established	Not established	No	Not established

- * Recommended by Manufacturer
- ** Recommended by NIOSH
- *** Syngenta Occupational Exposure Limit (OEL)
- **** Recommended by AIHA (American Industrial Hygiene Association)
- † Material listed in Ingredient Disclosure List under the Hazardous Products Act

Appropriate Engineering Controls: If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV (threshold limit value). Warehouses, production areas, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

Individual Protection Measures:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

Ingestion: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

Eyes: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Skin: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use a NIOSH certified respirator with any N, R, P or HE filter. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Opaque yellow liquid.
Formulation Type: Suspension concentrate.
Physical State: Liquid.
Odour: Aromatic, alcohol.
Odour Threshold: Not available.
pH: 4-8 (1% aqueous solution @ 20 °C).
Melting Point: Not applicable.
Freezing Point: Not applicable.
Initial Boiling Point and Boiling Range: Not available.
Flash Point: > 102 °C (Pensky-Martens CC).
Evaporation Rate: Not available.
Flammability (solid/gas): Not applicable.
Lower Explosive Limit: Not applicable.
Upper Explosive Limit: Not applicable.
Vapour Pressure: Propiconazole: 4.20×10^{-7} mmHg @ 20 °C.
Azoxystrobin: 8.30×10^{-13} mmHg @ 20 °C.
Vapour Density: Not available.
Relative Density: 1.03 g/mL @ 20 °C.
Solubility(ies): Propiconazole: 100 mg/L @ 20 °C, pH 7 (water).
Azoxystrobin: 6.7 mg/L @ 20 °C, pH 7 (water).
Partition Coefficient (n-octanol water): Propiconazole: 3.7
Azoxystrobin: 2.5
Auto-Ignition Temperature: > 440 °C.
Decomposition Temperature: Not available.
Viscosity: 550 – 800 mPa·s.

Other Information: Not applicable.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical Stability: Stable under normal use and storage conditions.
Possibility of Hazardous Reactions: No hazardous reactions with normal handling and storage according to the label directions.
Conditions to Avoid: No decomposition if used as directed.
Incompatible Materials: No substances are known which lead to the formation of hazardous substances or thermal reactions.
Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Dermal, inhalation, oral.

Symptoms of Acute Exposure: Harmful if swallowed or inhaled. Causes serious eye irritation. Causes mild skin irritation.

Potential Health Effects: Suspected of damaging fertility or the unborn child.

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Low Acute Toxicity</u> Oral (LD50 Rat)	1,750 mg/kg body weight (based on a substantially similar formulation)
Dermal:	<u>Low Acute Toxicity</u> Dermal (LD50 Rat)	> 5,000 mg/kg body weight (based on a substantially similar formulation)
Inhalation:	<u>Low Acute Toxicity</u> Inhalation (LC50 Rat)	> 2.55 mg/L air – 4 hours (based on a substantially similar formulation)
Eye Contact:	<u>Severely Irritating (Rabbit)</u>	(based on a substantially similar formulation)
Skin Contact:	<u>Mildly Irritating (Rabbit)</u>	(based on a substantially similar formulation)
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	(based on a substantially similar formulation)

Specific Target Organ Toxicity (STOT) Single Exposure:

Propiconazole:	Not classified as a specific target organ toxicant, single exposure.
Azoxystrobin:	Not classified as a specific target organ toxicant, single exposure.

Specific Target Organ Toxicity (STOT) Repeated Exposure:

Propiconazole:	No adverse effect has been observed in chronic toxicity tests.
Azoxystrobin:	Not classified as a specific target organ toxicant, repeated exposure.

Carcinogenicity:

Propiconazole:	Did not show carcinogenic effects in animal experiments.
Azoxystrobin:	Did not show carcinogenic effects in animal experiments.

Reproductive Toxicity:

Propiconazole:	Some adverse effects on development, based on animal experiments.
Azoxystrobin:	Did not show reproductive toxicity effects in animal experiments.

Mutagenicity:

Propiconazole:	Did not show mutagenic effects in animal experiments.
Azoxystrobin:	Did not show mutagenic effects in animal experiments.

Aspiration Hazard:

Propiconazole:	Not classified as an aspiration hazard.
Azoxystrobin:	Not classified as an aspiration hazard.

Toxicity of Other Components:

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

1-octanol:	Exposure may cause eye, skin and respiratory tract irritation. Prolonged skin contact may cause dermatitis and defatting.
Propylene glycol:	Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.
Ethoxylated tristyrylphenols:	The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the ethoxylated tristyrylphenols in the formulation.

SECTION 12: ECOLOGICAL INFORMATION

Eco-Acute Toxicity:

Propiconazole:		
Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀		2.2 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀		0.85 ppm
Birds (8-day dietary – Mallard Duck) LC ₅₀		> 5,620 ppm
Azoxystrobin:		
Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀		0.28 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀		0.47 ppm
Birds (5-day dietary – Mallard Duck) LC ₅₀ /EC ₅₀		> 5,290 ppm

Persistence & Degradability:

Propiconazole:	Moderately persistent in soil. Persistent in water; partitions to sediment.
Azoxystrobin:	Moderately persistent in soil. Moderately persistent in water.

Bioaccumulation Potential:

Propiconazole:	BCF < 500; does not bioaccumulate.
Azoxystrobin:	BCF < 500; does not bioaccumulate.

Mobility in Soil:

Propiconazole:	Moderate to low mobility in soil.
Azoxystrobin:	Low to moderate mobility in soil.

Other Adverse Effects: Not applicable.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Methods:

- Waste from residues: Refer to the product label for specific disposal/recycling information.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.
- Contaminated packaging: Refer to the product label for specific disposal/recycling information.
Empty remaining contents
Triple rinse containers
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not reuse empty containers.

SECTION 14: TRANSPORT INFORMATION

TDG Classification – Road/Rail:

Not regulated as a dangerous good.

Water Transport – International (IMDG):

- UN Number: UN 3082
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Azoxystrobin, Propiconazole), Marine Pollutant.
Transport Hazard Class: Class 9
Packing Group: PG III
Environmental Hazards: Marine pollutant.

Air Transport (IATA-DGR):

- UN Number: UN 3082
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Azoxystrobin, Propiconazole).
Transport Hazard Class: Class 9
Packing Group: PG III
Environmental Hazards: Environmentally hazardous.

Special Precautions for User:

Not applicable.

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable.

SECTION 15: REGULATORY INFORMATION

There are Canada-specific environmental requirements for handling, use and disposal of this pest control product that are indicated on the product label.

Hazardous Products Act Information:

This product has been classified in accordance with the amended Hazardous Products Act and the Hazard Criteria of the Hazardous Products Regulations (HPR), and the SDS contains all the information required by the HPR.

Hazardous Products Act Information: WHMIS 2015 Classification

This product is exempt under WHMIS 2015.

Pest Control Products Act (PCPA) Registration No.: 28328

Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:




PCPA Label Hazard Communications:

Read the label and attached booklet before using.

Keep out of reach of children.

Poison.

Warning: Eye and Skin Irritant.

<p>PCPA Hazard on Label: Poison</p> <p>PCPA Precautionary Symbol:</p>  <p>PCPA Signal Word(s): Not applicable. PCPA Hazard Statement: Not applicable.</p>	<p>GHS Hazard Classification: Acute Toxicity (Inhalation) – Category 4; Acute Toxicity (Oral) – Category 4</p> <p>GHS Hazard Symbol:</p>  <p>GHS Signal Word: Warning GHS Hazard Statement: H332 – Harmful if inhaled. H302 – Harmful if swallowed.</p>
<p>PCPA Hazard on Label: Eye Irritant</p> <p>PCPA Precautionary Symbol:</p> <p>PCPA Signal Word(s): Warning PCPA Hazard Statement: Not applicable.</p>	<p>GHS Hazard Classification: Eye Irritation – Category 2A</p> <p>GHS Hazard Symbol:</p>  <p>GHS Signal Word: Warning GHS Hazard Statement: H319 – Causes serious eye irritation.</p>
<p>PCPA Hazard on Label: Skin Irritant</p> <p>PCPA Precautionary Symbol:</p> <p>PCPA Signal Word(s): Warning PCPA Hazard Statement: Not applicable.</p>	<p>GHS Hazard Classification: Skin Irritation – Category 3</p> <p>GHS Hazard Symbol:</p> <p>GHS Signal Word: Warning GHS Hazard Statement: H316 – Causes mild skin irritation.</p>

Allergens Contained in the Pest Control Product:

Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction.

NPRI Components:

Not applicable.

SECTION 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant SDS. Hazardous properties of all ingredients have been considered in the preparation of this SDS. Read the entire SDS for the complete hazard evaluation of this product.

Full Text of Abbreviations:

AB – Province of Alberta

BC – Province of British Columbia

BCF – Bioconcentration factor

EC₅₀ – Effective concentration, 50%

GHS – Globally Harmonized System of Classification and Labeling of Chemicals

LC₅₀ – Lethal concentration, 50%

LD₅₀ – Lethal dose, 50%

IARC – International Agency for Research on Cancer

IATA-DGR – International Air Transport Association Dangerous Goods Regulations

IMDG – International Maritime Code for Dangerous Goods

NTP – National Toxicology Program

ON – Province of Ontario

OSHA – Occupational Safety & Health Administration

PEL – Permissible Exposure Limit

TDG – Transportation of Dangerous Goods

TLV – Threshold Limit Value

QC – Province of Quebec

SDS – Safety Data Sheet

WHMIS – Workplace Hazardous Materials Information System

Changes since last revision: Layout updated to meet January 2018 PMRA Guidance for Preparing SDSs according to GHS for Pest Control Products in Canada.

Revision Date (Y-M-D): 2019-01-28

Supersedes Date (Y-M-D): 2016-06-22

Prepared by: Syngenta Canada Inc.

1-87-SYNGENTA (1-877-964-3682)

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END OF SAFETY DATA SHEET.

Material Safety Data Sheet

Ingenious Quinclorac Dry Flowable Herbicide

Revision date : 2016/04/01

Version: 1.0

1. Product and Company Identification

Use: crop protection product, herbicide

Productierra
601-402 21st Street East
Saskatoon, Saskatchewan
Canada
S7K 0C3
1-888-931-2530

24 Hour Emergency Response Information
CANUTEC (collect): (613) 996-6666

Molecular formula: $C_{10}H_2O_2NCl_2$
Chemical family: quinoline derivative
Synonyms: quinclorac

SECTION - 2: COMPOSITION / INFORMATION ON INGREDIENTS

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Hazardous ingredients</u>
84087-01-4	75.0 %	Quinclorac
36290-04-7	<= 10 %	2-naphthalenesulfonic acid
7447-40-7	<=5 %	KCl

SECTION - 3: HAZARDS IDENTIFICATION

State of matter: solid
Colour: tan
Odour: mild,

Potential health effects

Irritation / corrosion:
Irritating to eyes, respiratory system and skin.

Potential environmental effects

Aquatic toxicity: High probability that the product is not acutely harmful to aquatic organisms based on technical data information.

Degradation / environmental fate:
Not readily biodegradable (as assessed by OECD criteria).

SECTION – 4: FIRST AID MEASURES

General advice:

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then provide artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary.

If on skin:

Rinse skin immediately with plenty of water for 15 - 20 minutes. If irritation develops, seek medical attention.

If in eyes:

Flush with copious amounts of water for at least 15 minutes. If irritation develops, seek medical attention.

If swallowed:

Rinse mouth immediately and then drink plenty of water, induce vomiting, seek medical attention. Call a poison control center or physician for treatment advice.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point: not applicable

Suitable extinguishing media:

foam, dry powder, carbon dioxide, water spray

Hazards during fire-fighting:

Oxides of carbon and nitrogen, Hydrogen chloride, halogenated hydrocarbons, Hydrocarbons. If product is heated above decomposition temperature, toxic vapours will be released. Those substances/groups of substances mentioned above may be released if this product is involved in a fire.

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

SECTION – 6: ACCIDENTAL RELEASE MEASURES

Personal precautions:

Always take appropriate protective measures when handling this product. Clear area of personnel. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation for enclosed environments. Wear suitable personal protective clothing and equipment.

Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

Cleanup:

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

SECTION – 7: HANDLING AND STORAGE

Handling

General advice:

Ensure adequate ventilation. Keep away from sources of ignition -No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. The substance/ product may be handled only by appropriately trained personnel. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours.

Storage

Storage incompatibility:

General advice: Separate from incompatible substances. Separate from foods and animal

feeds. Separate from textiles and similar materials.

Temperature tolerance

Protect from temperatures above: 40 °C. Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

SECTION – 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Users of pesticides should always refer to the product label for personal protective equipment requirements.

Advice on system design:

Ensure adequate ventilation.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Keep away from food, drink and animal feeding stuffs. Take off immediately all contaminated clothing.

SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

Form:	granules, solid
Odour:	mild, characteristic
Odour threshold:	No data available.
Colour:	tan

pH value: 3.2 (10 g/l)
Melting point: not applicable. The substance/product decomposes at elevated temperatures.

Information on: quinclorac

Melting range: 272.4 - 274.9 °C
Boiling point: The product is a non-volatile solid., not applicable
Vapour pressure: negligible
Bulk density: 565 - 593 g/l
Viscosity, dynamic: not applicable
Viscosity, kinematic: not applicable
Solubility in water: 64 mg/l (approx. 20 °C)
Molar mass: 239.04 g/mol

SECTION – 10: STABILITY AND REACTIVITY

Conditions to avoid:

Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme temperatures. Avoid prolonged exposure to extreme heat. Avoid contamination. Avoid electro-static discharge. Avoid prolonged storage.

This product may form an explosive mixture if:

1. the dust is suspended in the atmosphere as a dust cloud AND
2. the concentration of the dust is above the lower explosion limit (LEL) AND
3. the limiting oxygen concentration (LOC) is exceeded.

Substances to avoid:

No substances known that should be avoided.

Hazardous reactions:

The product is chemically stable. Hazardous polymerization will not occur. No hazardous reactions if stored and handled as prescribed/indicated.

Decomposition products:

Prolonged thermal loading can result in products of degradation being given off., No hazardous decomposition products if stored and handled as prescribed/indicated.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Oral:

Type of value: LD50 Species: rat (male/female)
Value: > 2,200 mg/kg No mortality was observed.

Inhalation:

Type of value: LC50 Species: rat

Value: > 6.1 mg/l Exposure time: 4 h No mortality was observed.

Dermal:

Type of value: LD50 Species: rat

Value: > 2,000 mg/kg No mortality was observed.

Irritation / corrosion

Skin:

Species: rabbit

Result: Irritating.

Eye:

Species: rabbit

Result: moderately irritating

Sensitization:

modified Buehler test Species: guinea pig

Result: Non-sensitizing.

Genetic toxicity

Information on: quinclorac

Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. From information gathered from these tests there is no indication that the substance is mutagenic.

SECTION – 12: ECOLOGICAL INFORMATION

Fish

Information on: quinclorac Acute: EPA 72-1 static *Oncorhynchus mykiss*/LC50 (96 h): > 100 mg/l EPA 72-1 static *Lepomis macrochirus*/LC₅₀ (96 h): > 100 mg/l

Aquatic invertebrates

Information on: quinclorac Acute: OECD Guideline 202, part 1 static *Daphnia magna*/EC₅₀ (48 h): > 100 mg/l

Aquatic plants

Information on: quinclorac Toxicity to aquatic plants: OECD Guideline 201 static green algae/EC₅₀ (96 h): > 100 mg/l OECD Guideline 201 Algae/EC₅₀ (96 h): > 100 mg/l

Bioaccumulation

Information on: quinclorac

Because of the resultant n-octanol/water distribution coefficient (log P_{ow}) accumulation in organisms is not expected.

SECTION – 13: DISPOSAL CONSIDERATIONS

Waste disposal of substance:

See product label for disposal and recycling instructions.

SECTION - 14: TRANSPORT INFORMATION

Land transport TDG	Not classified as a dangerous good under transport regulations.
Sea transport IMDG	Not classified as a dangerous good under transport regulations.
Air transport IATA/ICAO	Not classified as a dangerous good under transport regulations.

SECTION - 15: REGULATORY INFORMATION

Federal Regulations

Registration status:

Chemical	DSL, CA	released / listed
Crop Protection	DSL, CA	released / exempt

WHMIS does not apply to this product.

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

SECTION - 16: OTHER INFORMATION

MSDS Prepared by:

PRODUCTIERRA

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY

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END OF DATA SHEET



Raxil PRO

Fungicide

GROUP	3	4	FUNGICIDE
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A Seed Treatment Fungicide for seed and seedling protection against certain seed-borne and soil-borne diseases on labeled crops.

SUSPENSION

AGRICULTURAL

GUARANTEE: tebuconazole..... 3.0 g/L
 prothioconazole...15.4 g/L
 metalaxyl..... 6.2 g/L

REGISTRATION NO. 30102 PEST CONTROL PRODUCTS ACT

DANGER – CORROSIVE TO EYES

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

PROTECT FROM FREEZING

NET CONTENTS: 0.946 L – 1000 L

ALL SEED TREATED WITH THIS PRODUCT MUST BE CONSPICUOUSLY COLOURED

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB T2C 3G3

For product information, call: 1-888-283-6847

In case of spills, poisoning, fire or other emergencies,
call: 1-800-334-7577 (24 hours a day)

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GENERAL INFORMATION

Section 1: The Product

Raxil PRO is a seed treatment containing the fungicides prothionconazole, tebuconazole and metalaxyl. Raxil PRO provides protection from seed, seedling and soil-borne diseases caused by certain *Ustilago* spp., *Tilletia* spp., *Fusarium* spp., *Pythium* spp., *Cochliobolus sativus*, *Pyrenophora* spp., *Aspergillus* spp., *Penicillium* spp. and *Rhizoctonia solani* on labeled crops

SAFETY AND HANDLING

Section 2: Precautions, Protective Clothing and Equipment

PRECAUTIONS:

- KEEP OUT OF REACH OF CHILDREN.
- DANGER – Causes irreversible eye damage. Harmful if swallowed, inhaled, or absorbed through skin. DO NOT get in eyes. Wear protective eyewear. Avoid contact with skin and breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.
- Workers must wear long pants, a long-sleeved shirt, chemical-resistant gloves and protective eyewear during mixing, loading and treating. Wear long pants, a long-sleeved shirt and chemical-resistant gloves during clean-up, maintenance of seed treatment equipment, bagging, sewing or stacking of bagged treated seed. In addition, workers must wear a suitable dust mask when bagging or sewing bags of treated seed or when transferring seed to a storage bin.
- Do not apply in a way that this product will contact workers or other persons. Only handlers (mixers, loaders and applicators) wearing personal protective equipment may be in the area being treated during application.
- Wear long-sleeved shirt, long pants and chemical-resistant gloves when handling treated seed.
- All bags containing treated seed must be labelled or tagged as follows: "This seed has been treated with Raxil PRO containing prothioconazole, tebuconazole and metalaxyl. Wear a long-sleeved shirt, long pants and chemical-resistant gloves when handling treated seed. DO NOT use for feed, food or oil processing. Store away from feeds and other foodstuffs. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil."
- If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on the acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

Section 3: First Aid and Toxicological Information

FIRST AID:

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

There is no specific antidote if this product is ingested. Treat symptomatically.

Section 4: Environmental Precautions and Information

ENVIRONMENTAL HAZARDS:

- TOXIC to aquatic organisms.
- The use of this product may result in contamination of groundwater particularly in areas where soils are permeable (e.g., sandy soil) and/or depth to the water table is shallow.

Section 5: Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed. Store in a cool, dry place and avoid excessive heat. Keep container closed. To prevent contamination, store this product away from food or feed.

Section 6: Disposal

FOR NON-RETURNABLE CONTAINERS:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

FOR RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the mixture in the tank.
2. Make the empty container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR RETURNABLE CONTAINERS:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

TRIPLE RINSE INSTRUCTIONS (FOR RECYCLABLE AND DISPOSABLE CONTAINERS ONLY): This container should be triple-rinsed prior to its disposal. The rinsate can be added to the seed treatment. Follow these steps for rinsing of containers:

1. Transfer Raxil PRO from the container to the seed treating equipment applicator tank.
2. Add 1/3 of the rinse water to the container and agitate the contents.
3. Transfer the rinsate to the applicator tank.
4. Rinse as above 2 more times.
5. Thoroughly mix the Raxil PRO and rinse water in the applicator tank prior to use.

CAUTION: Be sure to adjust the undiluted application rate by the same volume of water added to compensate for the dilution of the product caused by the addition of rinsate.

DISPOSAL OF UNUSED, UNWANTED PRODUCT:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

DISPOSAL OF TREATED SEED:

Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. Dispose of seed packaging in accordance with local requirements. DO NOT re-use bags from treated seed to handle food or feed products.

Section 7: Notices

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

DIRECTIONS FOR USE

Raxil PRO is a ready-to-use seed treatment formulation for use in commercial seed treatment operations and for on-farm treatment with conventional seed treating equipment which can accurately meter, mix and apply flowable seed treatment formulations. Allow seeds to dry before bagging, storing or seeding. Uniform application to seed is necessary to ensure best disease protection and seed safety.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Section 8: Pests Controlled

Raxil PRO is a seed treatment containing the fungicides prothionconazole, tebuconazole and metalaxyl. Raxil PRO provides protection from seed, seedling and soil-borne diseases caused by certain *Ustilago* spp., *Tilletia* spp., *Fusarium* spp., *Pythium* spp., *Cochliobolus sativus*, *Pyrenophora* spp., *Aspergillus* spp., *Penicillium* spp. and *Rhizoctonia solani* on labeled crops.

Section 9: Recommended Uses

CROP	PEST	APPLICATION RATE	DIRECTIONS
<p>Barley</p>	<p>Control:</p> <p>Seed rot, pre-emergent damping-off caused by seed- and soil-borne <i>Fusarium spp.</i>, <i>Cochliobolus sativus</i> and soil-borne <i>Pythium spp.</i></p> <p>Seedling blight caused by seed-borne <i>Fusarium spp.</i>, <i>Cochliobolus sativus</i> and soil-borne, <i>Fusarium spp.</i> and <i>Pythium spp.</i></p> <p>Post-emergent damping-off caused by seed- and soil-borne <i>Fusarium spp.</i> and <i>Cochliobolus sativus</i></p> <p>Seed rot, pre-emergent damping-off, post-emergent damping-off and seedling blight caused by seed-borne <i>Aspergillus spp.</i></p> <p>True loose smut Covered smut False loose smut Barley leaf stripe</p>	<p>Apply 325 mL per 100 kg of seed</p>	<p>Use only in treating equipment which can accurately control application rates and provide good distribution of the chemical onto the seed in the mixing chamber.</p> <p>Uniform application to seed is necessary to ensure best disease protection and seed safety.</p>
	<p>Suppression:</p> <p>Root and Crown rot caused by seed- and soil-borne <i>Fusarium spp.</i></p> <p>Common root rot caused by seed- and soil-borne <i>Cochliobolus sativus</i></p> <p>Seedling blight caused by seed-borne <i>Penicillium spp.</i></p> <p>Seed rot, pre-emergent damping off and root rot caused by <i>Rhizoctonia solani</i></p>		

CROP	PEST	APPLICATION RATE	DIRECTIONS
Oats	<p>Control:</p> <p>Seed rot, pre-emergent damping-off caused by seed- and soil-borne <i>Fusarium spp.</i>, <i>Cochliobolus sativus</i> and soil-borne <i>Pythium spp.</i></p> <p>Seedling blight caused by seed-borne <i>Fusarium spp.</i>, <i>Cochliobolus sativus</i> and soil-borne, <i>Fusarium spp.</i> and <i>Pythium spp.</i></p> <p>Post-emergent damping-off caused by seed- and soil-borne <i>Fusarium spp.</i> and <i>Cochliobolus sativus</i></p> <p>Seed rot, pre-emergent damping-off, post-emergent damping-off and seedling blight caused by seed-borne <i>Aspergillus spp.</i></p> <p>Loose smut Covered smut</p>	Apply 325 mL per 100 kg of seed	<p>Use only in treating equipment which can accurately control application rates and provide good distribution of the chemical onto the seed in the mixing chamber.</p> <p>Uniform application to seed is necessary to ensure best disease protection and seed safety.</p>
	<p>Suppression:</p> <p>Root and Crown rot caused by seed- and soil-borne <i>Fusarium spp.</i></p> <p>Common root rot caused by seed- and soil-borne <i>Cochliobolus sativus</i></p> <p>Seedling blight caused by seed-borne <i>Penicillium spp.</i></p> <p>Seed rot, pre-emergent damping off and root rot caused by <i>Rhizoctonia solani</i></p>		

CROP	PEST	APPLICATION RATE	DIRECTIONS
Wheat	<p>Control:</p> <p>Seed rot, pre-emergent damping-off caused by seed- and soil-borne <i>Fusarium spp.</i>, <i>Cochliobolus sativus</i> and soil-borne <i>Pythium spp.</i></p> <p>Seedling blight caused by seed-borne <i>Fusarium spp.</i>, <i>Cochliobolus sativus</i> and soil-borne, <i>Fusarium spp.</i> and <i>Pythium spp.</i></p> <p>Post-emergent damping-off caused by seed- and soil-borne <i>Fusarium spp.</i> and <i>Cochliobolus sativus</i></p> <p>Seed rot, pre-emergent damping-off, post-emergent damping-off and seedling blight caused by seed-borne <i>Aspergillus spp.</i></p> <p>Loose smut Common bunt</p>	Apply 325 mL per 100 kg of seed	<p>Use only in treating equipment which can accurately control application rates and provide good distribution of the chemical onto the seed in the mixing chamber.</p> <p>Uniform application to seed is necessary to ensure best disease protection and seed safety.</p>
	<p>Suppression:</p> <p>Root and Crown rot caused by seed- and soil-borne <i>Fusarium spp.</i></p> <p>Common root rot caused by seed- and soil-borne <i>Cochliobolus sativus</i></p> <p>Seedling blight caused by seed-borne <i>Penicillium spp.</i></p> <p>Seed rot, pre-emergent damping off and root rot caused by <i>Rhizoctonia solani</i></p>		

TANK-MIXTURES

For control of certain insect pests, Raxil PRO may be combined with certain seed treatment insecticides.

For recommended tank-mixes, read the label directions for each product and follow the most restrictive label precautions and limitations.

CROP	TANK-MIX PARTNER
Wheat, Barley, Oats	Stress Shield

Section 10: Application Cautions

SEED QUALITY: Lab and field studies have shown that Raxil PRO treated seed can be stored without loss in germination or disease performance. Many seed types are prone to mechanical damage during seed handling, and a reduction in germination within a seed lot can occur should handling cause seed damage irrespective of seed treatment application. Raxil PRO-treated or untreated seed may drop in germination with age and germination drops are accelerated under adverse storage conditions or in seed with a high level of mechanical damage. Use handling equipment designed to minimize mechanical damage when moving seed. Due to seed quality and seed storage conditions beyond the control of Bayer CropScience, no claims are made to guarantee the germination of carry-over seed or propagating materials for all crop seed. Treatment of highly mechanically scarred or damaged seed, or seed known to be of low vigour and poor quality, may result in reduced germination and/or reduction of seed and seedling vigour. Treat a small quantity of seed using equipment similar to that planned for treating the total seed lot. Conduct germination tests on a small portion of seed before committing the total seed lot to a selected seed treatment.

Section 11: Use Limitations

USE RESTRICTIONS:

- Treated seed must not be used for food, feed or oil processing.

LABELLING TREATED SEED:

All bags containing treated seed must be labelled or tagged as follows: “This seed has been treated with Raxil PRO, which contains prothioconazole, tebuconazole and metalaxyl. Wear a long-sleeved shirt, long pants and chemical-resistant gloves when handling treated seed. **DO NOT** use for feed, food or oil processing. Store away from feeds and other foodstuffs. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil.”

Section 12: Resistance Management Recommendations

For resistance management, please note that Raxil PRO contains Group 3 and Group 4 fungicides. Any fungal population may contain individuals naturally resistant to Raxil PRO and other Group 3 and 4 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of Raxil PRO or other Group 3 and 4 fungicides with different groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group when such use is permitted.
- Fungicide use should be based on an IPM program that includes scouting, historical

information related to pesticide use and crop rotation and considers cultural, biological and other chemical control practices.

- Monitor fungal populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
 - For further information or to report suspected resistance contact Bayer CropScience Inc at 1-888-283-6847 or at www.bayercropscience.ca.

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RAXIL® PRO FUNGICIDE

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102000020819

1/11
Revision Date: 09/21/2016
Print Date: 10/31/2016

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name RAXIL® PRO FUNGICIDE

Product code (UVP) 79527713

SDS Number 102000020819

PCP Registration No. 30102

Relevant identified uses of the substance or mixture and uses advised against

Use Fungicide, Seed treatment

Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada

Responsible Department Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577

Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

Eye irritation: Category 2A

Acute toxicity(Inhalation): Category 4

Reproductive toxicity: Category 2

Labelling in accordance with Part 3 of the Hazardous Products Regulations



Signal word: Warning

Hazard statements

Causes serious eye irritation.

Harmful if inhaled.

Suspected of damaging fertility or the unborn child.

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102000020819

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Precautionary statements

Wash thoroughly after handling.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
Avoid breathing mist and spray.
Use only outdoors or in a well-ventilated area.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.
IF exposed or concerned: Get medical advice/ attention.
Store locked up.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Tebuconazole	107534-96-3	0.29
Prothioconazole	178928-70-6	1.47
Metalaxyl	57837-19-1	0.59
Ethoxylated tallow alkyl amines	61791-26-2	5.0

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Eye contact Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

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Ingestion Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Water spray, Foam, Carbon dioxide (CO₂), Dry chemical

Unsuitable High volume water jet

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point > 93.4 °C

Auto-ignition temperature No data available

Lower explosion limit No data available

Upper explosion limit No data available

Explosivity Not applicable

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102000020819

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Print Date: 10/31/2016

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. If material is accidentally spilled, do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation. Handle and open container in a manner as to prevent spillage.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Protect from freezing.

Advice on common storage Keep away from food, drink and animal feedingstuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Tebuconazole	107534-96-3	0.2 mg/m ³		OES BCS*

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		(SK-ABS)		
Prothioconazole	178928-70-6	1.4 mg/m ³ (SK-ABS)		OES BCS*
1,2-Propanediol (Aerosol.)	57-55-6	10 mg/m ³ (TWAEV)	11 2010	CAD ON OEL
1,2-Propanediol (Vapor and aerosol.)	57-55-6	155 mg/m ³ /50 ppm (TWAEV)	06 2015	CAD ON OEL

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection

Chemical resistant nitrile rubber gloves

Eye protection

Safety glasses / Face shield

Skin and body protection

Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	red
Physical State	Liquid
Odor	characteristic
Odour Threshold	No data available
pH	7.20 - 8.80 at 100 % (23 °C)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	1.04 g/cm ³ at 20 °C
Evaporation rate	No data available
Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	dispersible

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Minimum Ignition Energy	Not applicable
Decomposition temperature	No data available
Partition coefficient: n-octanol/water	No data available
Flash point	> 93.4 °C
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	No data available
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	freezing
Incompatible materials	No data available
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Ingestion, Inhalation, Skin Absorption
Immediate Effects	
Eye	Causes substantial but temporary eye injury.
Skin	Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.
Information on toxicological effects	
Acute oral toxicity	LD50 (female Rat) > 2,000 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 2.6 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.

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	highest concentration tested
Acute dermal toxicity	LD50 (Rat) > 5,000 mg/kg
Skin irritation	No skin irritation (Rabbit)
Eye irritation	Moderate eye irritation. (Rabbit)
Sensitisation	Non-sensitizing. (Guinea pig)

Assessment STOT Specific target organ toxicity – repeated exposure

Tebuconazole did not cause specific target organ toxicity in experimental animal studies.
Metalaxyl did not cause specific target organ toxicity in experimental animal studies.
Prothioconazole did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Tebuconazole was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Metalaxyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Prothioconazole was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Tebuconazole caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver. The mechanism of tumour formation is not considered to be relevant to man.
Metalaxyl was not carcinogenic in lifetime feeding studies in rats and mice.
Prothioconazole was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Tebuconazole caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Tebuconazole is related to parental toxicity.
Metalaxyl did not cause reproductive toxicity in a multi-generation study in rats.
Prothioconazole caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Prothioconazole is related to parental toxicity.

Assessment developmental toxicity

Tebuconazole caused developmental toxicity only at dose levels toxic to the dams. Tebuconazole caused an increased incidence of post implantation losses, an increased incidence of non-specific malformations.

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Metalaxyl did not cause developmental toxicity in rats and rabbits. Prothioconazole caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Prothioconazole are related to maternal toxicity.

Further information

Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 1.83 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient prothioconazole.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 1.3 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient prothioconazole.
Toxicity to aquatic plants	IC50 (Raphidocelis subcapitata (freshwater green alga)) 2.18 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient prothioconazole.
Biodegradability	Tebuconazole: Not rapidly biodegradable Metalaxyl: Not rapidly biodegradable Prothioconazole: Not rapidly biodegradable
Koc	Tebuconazole: Koc: 769 Metalaxyl: Koc: 163 Prothioconazole: Koc: 1765; log Koc: < 3
Bioaccumulation	Tebuconazole: Bioconcentration factor (BCF) 35 - 59 Does not bioaccumulate. Metalaxyl: Bioconcentration factor (BCF) < 7 Does not bioaccumulate. Prothioconazole: Bioconcentration factor (BCF) 19 Does not bioaccumulate.
Mobility in soil	Tebuconazole: Slightly mobile in soils Metalaxyl: Moderately mobile in soils Prothioconazole: Slightly mobile in soils
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites. Do not apply when weather conditions favor runoff or drift. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

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SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product Dispose in accordance with all local, state/provincial and federal regulations.
Follow container label instructions for disposal of wastes generated during use in compliance with the product label.
Do not contaminate water, food, or feed by disposal.

Contaminated packaging Triple rinse containers.
Puncture container to avoid re-use.
Follow advice on product label and/or leaflet.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	3082
Labels	9
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PROTHIOCONAZOLE)

49CFR Not dangerous goods / not hazardous material

IMDG

UN number	3082
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PROTHIOCONAZOLE SOLUTION)

IATA

UN number	3082
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PROTHIOCONAZOLE SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

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Further Information Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1. This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.

Freight Classification: INSECTICIDES OR FUNGICIDES, N.O.I., OTHER THAN POISON

SECTION 15: REGULATORY INFORMATION

PCP Registration No. 30102

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

None.

Canadian Regulations

Canadian Domestic Substance List

Ethoxylated tallow alkyl amines 61791-26-2

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

Tebuconazole 107534-96-3

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SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 2 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: The following sections have been revised: Section 2: Hazards Identification. Section 3: Composition / Information on Ingredients. Section 11: Toxicological Information.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 09/21/2016

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

GROUP	22	HERBICIDE
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REGLONE® DESICCANT

Solution

AGRICULTURAL

For Potato Vine Killing, Desiccation of Pulse, Oilseed and Legume Forage Seed Crops, Weed Control in Vegetable and Field Crops, Control of Corn Spurry in Oats and Weed Control in Non-crop Land (rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks).

GUARANTEE:

Diquat ion 240 g per litre
(Present as dibromide)

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

WARNING



POISON

CAUTION – EYE AND SKIN IRRITANT

REGISTRATION NO. **26396**
PEST CONTROL PRODUCTS ACT

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario
N1G 4Z3
Telephone: 1-877-964-3682

WARNING!
***HARMFUL OR FATAL IF SWALLOWED.**
HARMFUL IF INHALED, AVOID INHALING/BREATHING DUST,
SPRAYS, ETC.
***CAUSES SUBSTANTIAL EYE INJURY AND SKIN IRRITATION.**
***DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.**
***NEVER TRANSFER TO OTHER CONTAINERS.**
*** KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, **IMMEDIATELY** hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If **swallowed**, give adsorbent suspension, for example either activated charcoal (100 g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄, Na₂SO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column.

If in eyes, treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

PRECAUTIONS

EXCESSIVE EXPOSURE TO DIQUAT MAY CAUSE A HEALTH HAZARD. FOLLOWING THE DIRECTIONS AND PRECAUTIONS WILL REDUCE EXPOSURE.

DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical resistant footwear, and a respirator during mixing, loading and application, clean-up and repair. Chemical-resistant headgear must be worn for overhead applications. Most exposure to pesticides is by absorption through skin, especially from concentrated material handled at the time of mixing and loading. Rolling down the sleeve end of the glove will prevent drips of liquid from running down the glove onto your arm.

Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY. Launder contaminated clothing prior to reuse and separate from household laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Do not eat, drink, handle or use tobacco, or apply cosmetics in areas where there is potential for exposure to this product. Users should wash hands and face before eating, drinking, chewing gum, handling tobacco or using the toilet. Store and wash all protective clothing separately from household laundry.

Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours for all agricultural uses. For all other terrestrial uses, DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

STORE IN ORIGINAL CONTAINER tightly closed in a safe place away from children.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-877-SYNGENTA / 1-877-964-3682.

ENVIRONMENTAL HAZARDS

ANY DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH.

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid applications to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative buffer strip between the treated area and the edge of the water body.

STORAGE

Store in original container, tightly closed, in a safe place away from children.

Store above 0 °C. If crystallization occurs because of storage below this, warm to room temperature and agitate gently until reconstituted.

To prevent contamination store this product away from food or feed.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

PRODUCT INFORMATION

REGLONE® Desiccant is a non-volatile, fast acting herbicide. It is inactivated on contact with the soil and therefore, has no residual effect. The herbicidal effect varies with weed species, hence repeat applications may be necessary upon certain perennial weeds. Annual weeds are generally killed with one application.

Germination of seed is not affected by REGLONE Desiccant for all crops which could go for seed sale.

REGLONE Desiccant is easily applied in high or low volume sprayers. Very low volume or ultra low volume equipment for aerial application, e.g. rotary atomizer nozzles such as MICRONAIR, are not recommended. Flat fan or hollow cone nozzles are recommended for optimum results. Always use recommended water volume. Complete coverage is essential. DO NOT USE MIST BLOWERS.

REGLONE Desiccant is rapidly absorbed by plants, and effectiveness is not reduced by rain falling shortly after treatment. EFFECTIVENESS OF THE TREATMENT MAY BE ENHANCED WHEN APPLICATION IS MADE ON CLOUDY DAYS OR PRIOR TO PERIODS OF DARKNESS.

Use clean (non-turbid) water for spraying REGLONE Desiccant. Muddy water will reduce the effectiveness of REGLONE Desiccant.

THE USER MUST BE AWARE THAT THIS PRODUCT ACCELERATES THE NATURAL PROCESS OF CROP DRY DOWN. IN CASES OF ADVERSE WEATHER CONDITIONS SUCH AS HEAVY RAIN, HAIL OR STRONG WIND, THE RESULTANT DAMAGE TO YOUR CROP MAY BE ENHANCED. TAKE NOTE THAT CERTAIN CROPS ARE MORE FRAGILE THAN OTHERS.

Crop waste remaining after harvest (e.g. pea vines, alfalfa stems) may be used as a feed supplement for livestock.

HARVESTING

The use of REGLONE Desiccant facilitates direct combining of many field crops such as lentils, peas, canola, mustard or legumes. Growers who wish to swath desiccated crops should wait until the crop has dried down sufficiently to allow the desiccated crop to be picked up and threshed immediately after swathing. Delaying threshing after swathing desiccated crops will increase shattering and seed loss.

For most crops, harvest can normally commence within 4-10 days after desiccation. However, adverse weather conditions such as rainfall, cool temperatures and high humidity will slow plant desiccation and keep seed moisture levels high which can delay commencement of harvest beyond 10 days after application. When those conditions prevail after REGLONE Desiccant desiccation, commence harvest when plant material is dry and seed moisture level allows efficient harvesting. To minimize seed loss and to maintain seed quality, harvest of desiccated crops should commence as soon as seed moisture reaches the level for normal harvest.

CLEANING SPRAYER AFTER USE

It is important to thoroughly wash equipment after spraying - use a wetting agent (AGRAL® 90 at 60 mL per 100 L of water), flush and spray out, then thoroughly rinse with clean water. When possible, the equipment should be filled with clean water and left overnight. Spray out before storing

equipment or using for other materials.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Refer to the following table for a summary of rates, application volumes and growth stages for ground and aerial application of REGLONE Desiccant. The table provides operational information. The applicator is directed to the CROPS-ADDITIONAL NOTES section for any additional information prior to spraying. Ground spraying may be done with any standard boom sprayer.

When tank mixing, always read the labels of the tank mix partners and follow all directions for use, restrictions and precautions.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and parks is minimal. Take into consideration meteorological conditions (e.g. wind speed, wind direction, temperature inversion) and application equipment and sprayer settings used for application.

Mixers and loaders supporting aerial applications are required to use closed systems.

Field sprayer application: DO NOT apply during period of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C) and **humidity** (greater than 50%). DO NOT apply when wind speed is greater than 9 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To minimize spray drift, use flat fan or hollow cone nozzles, and a pressure of 150-200 kPa, with the nozzle pointed back 150°-180°. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wingspan or rotorspan.

For application to rights-of-way, buffer zones for production of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g. wind direction, low wind speed) and spray equipment (e.g. coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

Use AGRAL 90, a wetting and spreading agent, at a rate of 1 L for each 1000 L of spray mixture unless otherwise stated. For beans (white and red kidney, soybeans and adzuki beans) or lentils, LI 700® at a rate of 2.5 L for each 1000 L of spray mixture may be used. See potato vine killing use for detailed information on use of adjuvant on potatoes in the prairie provinces.

AGITATE WELL BEFORE USE.

Buffer zones:

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Crop		Buffer Zones (metres) Required for the Protection of:		
			Aquatic Habitat of Depths:		Terrestrial Habitat
			Less than 1 m	Greater than 1 m	
Field sprayer ¹	Beans, canola, flax, lentils, mustard, peas, sunflower, legume forage seed crops, sweet white lupins		5	3	3
	Vegetable and field crops, fruit, non-cropland (including rights-of-way ² for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks), potatoes		10	5	5
Aerial	Beans, legume forage seed crops	Fixed wing	150	80	90
		Rotary wing	100	55	70
	Potato	Fixed wing	200	100	100
		Rotary wing	125	65	80

¹ For field sprayer application, buffer zones can be reduced with the use of drift-reducing spray shields. When using a spray boom fitted with a shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

² For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zones of the products involved in the tank mixture.

GROUND APPLICATION

Ground spraying may be done with any standard boom sprayer.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals are required to use a closed system.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical-resistant coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves and footwear, goggles and a respirator during mixing/loading, clean-up and repair, and chemical-resistant headgear for overhead applications.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-87-SYNGENTA (1-877-964-3682) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 45 litres per hectare.

Refer to ENVIRONMENTAL PRECAUTIONS for additional details.

ENVIRONMENTAL PRECAUTIONS

AIRCRAFT APPLICATION IS NOT RECOMMENDED WHERE WETLANDS OR WILDLIFE COVER MIGHT BE OVERSPRAYED. AVOID SPRAY DRIFT ONTO ADJACENT CROPS, SHELTER BELTS AND WILDLIFE COVER. AVOID OVERSPRAYING OR DRIFT ONTO SLOUGHS.

SINCE HERBICIDE APPLICATION MAY DAMAGE THE HABITAT OF MIGRATORY BIRDS AND OTHER WILDLIFE SPECIES, DO NOT USE AERIAL APPLICATION IN FIELDS WHERE WETLANDS OR OTHER GOOD WILDLIFE COVER MIGHT BE OVERSPRAYED; THIS INCLUDES SLOUGHS AND DRY SLOUGH MARGINS IN WESTERN CANADA. USE GROUND SPRAYERS AND LEAVE AN UNSPRAYED MARGIN OF 15 M AROUND THE BORDER OF ALL SLOUGHS.

Apply in weather conditions that will not promote drift. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C), **humidity** (greater than 50%), and **wind** 3.5-9 kph at flying height at the site of application. Do not apply in dead calm conditions or when temperature inversion is likely (e.g. evening when warm air is rising from crop or morning when sunshine warms the soil and air rises from the field). To avoid spray drift, use flat fan or hollow cone nozzles, and a pressure of 150-200 kPa, with the nozzles pointed back 150°-180°.

TABLE 1

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Field Crops					
Beans - White & Red Kidney, Soybeans and Adzuki beans	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray at 80-90% natural leaf defoliation and at least 80% of the pods have turned yellow. Consider pod turn only when determining application time in years when heavy vine growth is anticipated.
	1.7-2.1	Aerial	at least 45		
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	
	2.3	Aerial	at least 45		
Canola	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply when 90% or more of seed has turned brown. Combine no later than 14 days after application.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		
Chickpeas	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green. For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Drydown is less complete in Kabuli type due to its thick pod wall.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	
Flax (including low linolenic acid varieties)	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when crop is at 75% boll turn stage.
	1.7	Aerial	at least 45		Harvest when flaxseed tests 'dry'.
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Legumes (alfalfa, birdsfoot trefoil, red clover and white clover) Seed Crops	1.7-2.7	Ground	225-550	Full canopy and/or weedy crop	Seed crops only. Apply when the majority of the pods of individual plants are ripe but before they shatter. To prevent pod shattering and loss of seed the interval between spraying and harvest should not exceed 7 days.
	1.7-2.7	Aerial	at least 45		
	2.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.7	Aerial	at least 45	and/or secondary regrowth	
Lentils	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply REGLONE Desiccant at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and rattle.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		
Mustard (condiment type only)	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when crop is at 75% seed turn (green to brown) stage. Combine no later than 14 days after application.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		
Oats - Corn Spurry Control	0.9	Ground	225-335	Corn spurry less than 8 cm high	Do not use wetters, spreaders or stickers.
	1.25	Ground	225-335	Corn spurry more than 8 cm high	Apply when oats are 8-15 cm in height. DO NOT APPLY BY AIR.
Peas - Field or Dry	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Apply REGLONE Desiccant when bottom pods of the majority of the plants are ripe & dry with the seeds detached from the pods. Seed in less mature pods will split when squeezed.
	1.7	Aerial	at least 45		
	1.7	Ground	225-550	Very dense canopy and/or weedy crop	
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Potato - Vine Killing	3.5	Ground	550-1100	Top growth heavy or weedy field	DO NOT apply to drought stressed potatoes (see additional notes on Potato Vine Killing). Use of AGRAL 90 or LI 700 is not recommended for this crop, except as noted. Second application 4-6 days after first application at normal top killing time. Use higher rate in the first application on denser or immature vines. A fungicide may be added. 1.25 L rate may require more than 10-14 days to give a complete kill. Do not use 1.25 L rate in BC.
	1.7-2.3	Ground	550-1100	Top growth light, little weed growth <u>or</u> top growth heavy and in early stage of maturity	
	1.25-2.3 plus 1.25	Ground	550-1100	Top growth heavy <u>or</u> top growth light and weedy field (for Eastern Canada only)	
	1.7-2.3 plus 1.25	Aerial	at least 45	All top growth conditions. No geographic limitation.	
	1.25	Ground	550-1100 (add 1 L AGRAL 90 /1000 L or 2.5 L LI 700/ 1000 L in the prairie provinces)	Top growth fully mature, little or no weeds	
Sweet White Lupins	2.3	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when the pods are brown and the internal seed (endosperm) yellow when cut. DO NOT APPLY BY AIR.
Sunflowers	1.25-1.7	Ground	225-550	Full canopy, few weeds (normal crop)	Spray when seeds reach maturity (20-50% moisture in the seed and hull). Combine 15-20 days after spraying.
	1.7	Aerial	at least 45	Very dense canopy and/or weedy crop	
	1.7	Ground	225-550		
	2.3	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
Vegetables & Field Crops					
Stale Seedbed	2.3	Ground	at least 300	Small weeds (3-5 cm high)	Stale Seedbed - Pre-emergent to crop, post emergent weeds.
	4.6	Ground	at least 300	Large weeds (greater than 5 cm high)	Burn off weeds either prior to, or after seeding, but 3 days before crop emergence. If grasses are present, use GRAMOXONE® in place of REGLONE Desiccant. DO NOT APPLY BY AIR.
Vegetables					
Inter-row directed weeding	2.3-4.6	Ground	900-1100		If grasses are present use GRAMOXONE in place of REGLONE Desiccant. DO NOT APPLY BY AIR.
Fruit					
Perennial grass suppression under apple trees	4.6	Ground	225-675		DO NOT APPLY BY AIR.
Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)					
Weed Control in non-crop land	2.3-4.6	Ground	550-1100		Use higher rates and higher volume of water for dense weed growth. Thoroughly wet foliage. DO NOT APPLY BY AIR.

CROPS - ADDITIONAL NOTES

Beans

White and Red-Kidney Beans, Soybeans and Adzuki Beans

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Spray at 80-90% natural leaf defoliation and when at least 80% of the pods have turned yellow. In years of excessive vine regrowth, consider pod colour only for the timing of REGLONE Desiccant application.

Desiccation of weeds is completed in a week. THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS. Direct combine or pull beans when they are considered ready. Combining of dry beans and Adzuki beans can often be done the day of pulling; however, this is dependent on the condition of the beans.

REGLONE Desiccant applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged

drought stress conditions exist prior to application, use the highest registered rate of REGLONE Desiccant for beans as well as the highest registered water volume to obtain the best activity.

Canola

This treatment does not mature canola. REGLONE Desiccant is an effective desiccant aiding in the harvest of canola. Speed of pod and stem dry down will vary depending on spray coverage, environmental conditions and plant growth stage at application; however pod and stem kill will take place 7-10 days after application.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Apply when 90% or more of seed has turned brown; application of REGLONE Desiccant prior to this stage can result in high levels of green seed in the sample.

Commence harvest as soon as the crop can be combined since significant yield loss in standing desiccated canola crops, particularly Argentine varieties, can occur due to pod drop and pod shattering. This yield loss can be greater if harvest of the standing desiccated crop is delayed or when unfavourable weather conditions including high winds and heavy rainfall occur.

Germination of seed is not affected by REGLONE Desiccant desiccation.

Chickpeas

This treatment does not mature chickpeas. Chickpea swaths are at risk to wind loss, and straight cutting is preferred. Timing is vital as premature desiccation will result in yield and quality loss. Crops should be closely monitored for correct stage of application. Application of REGLONE Desiccant may cause the small stem attaching the pod to the chickpea plant to become brittle and lead to increased pod loss. Wait 4 to 7 days before combining the crop. It may be advantageous to harvest, and bin separately, chickpea grain from late maturing areas of the field. Use of higher water volumes will provide more complete coverage.

For Desi type, apply at the time swathing would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part of plant may still be green.

For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Drydown is less complete in Kabuli type due to its thick pod wall.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage.

Germination of seed is not affected by REGLONE Desiccant desiccation.

Flax (including low linolenic acid varieties)

REGLONE Desiccant is an effective desiccant aiding in the harvest of flax (including low linolenic acid varieties). Desiccation reduces the period of time from maturity to harvest, reduces wear and tear on harvesting equipment, reduces harvest time, decreases the moisture content of the seed and eliminates the need for swathing.

Spray when the crop is at the 75% boll turn stage (normal swathing time).

Do not apply before 75% boll turn. Harvest when the flaxseed tests 'dry'.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage.

Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Germination of seed is not affected by REGLONE Desiccant desiccation of the crop.

Fruit

Perennial Grass Suppression Under Apple Trees

See Table 1 for rates.

DO NOT APPLY BY AIR.

Legumes

Alfalfa, Birdsfoot Trefoil, Red Clover, and White Clover Seed Crops

To prevent seed pod shattering and loss of seed, the interval between spraying and harvest should not exceed 7 days. NOTES: 1) Birdsfoot trefoil plants under drought or disease stress may be subject to damage when desiccated with REGLONE Desiccant. 2) Do not use REGLONE Desiccant if a residual herbicide has been used on the legumes within the past 12 months.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Lentils

Apply REGLONE Desiccant at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and seeds rattle. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs.

REGLONE Desiccant applied to lentils under prolonged drought stress, rainfall, cool temperatures and high humidity will provide slower and less effective desiccation compared to applications made under normal growing conditions. If these conditions exist prior to application, use the highest registered rate of REGLONE Desiccant for lentils as well as the highest registered water volume to obtain the best activity. Harvest delays should be expected.

Mustard (condiment type only)

Spray when the crop is at the 75% seed turn (green to brown) stage. Do not apply when the crop is immature or past the recommended stage of maturity. Commence combining no later than 14 days after application. **NOTE:** Pod drop and some shattering can occur in high winds in the standing

crop.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Apply by means of an aircraft fitted to apply uniform spray coverage.

Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)

Weed Control in Non-Crop Land

For the top kill of weeds, REGLONE Desiccant will provide a rapid top-kill of weeds and grasses when applied as a foliar spray. REGLONE Desiccant may be added to tank mixes of certain soil sterilants where immediate top kill and long term soil sterilization is required. The combined use with soil sterilants should be based on previous experimental experience, and recommendations on the label of the residual herbicide.

DO NOT APPLY BY AIR.

Oats - Corn Spurry Control

REGLONE Desiccant, when applied by ground sprayer as recommended in Table 1 will burn corn spurry and give a temporary burning of the exposed oats leaves, but the plants quickly recover. Do not use any surfactant.

DO NOT APPLY BY AIR.

Peas

This treatment does not mature peas. Because pea swaths are at considerable risk to wind losses, straight cutting should be considered. Timing is vital as premature desiccation will result in yield loss: crops should be closely monitored. Commence combining when the peas test "dry".

REGLONE Desiccant applied to peas under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of REGLONE Desiccant for peas as well as the highest registered water volume to obtain the best activity.

With indeterminate varieties, apply REGLONE Desiccant when the lower pods of most plants are ripe, dry, translucent and shrunken, with enclosed seeds detached from the pods. Middle pods will be somewhat shrunken and leathery, and the seed will split when squeezed. Desiccation will dry out upper pods and green plant growth, leaving bottom and middle pods with the highest quality seed.

With determinate varieties, REGLONE Desiccant should be applied when the top and upper middle pods are somewhat shrunken and leathery and seeds in these pods split when squeezed. The lower middle and bottom pods are ripe and dry, translucent and shrunken, with seeds enclosed in these pods detached.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Potato Vine Killing

Use of adjuvant is not recommended in the spray mixture for this crop except in the Prairie Provinces.

REGLONE Desiccant is an effective potato vine killer of seed and table potatoes. Leaf kill is rapid (3-4 days) with kill of stems taking place gradually (10-14 days) giving conditions that closely approach 'natural' maturity. At recommended rates of application, REGLONE Desiccant also desiccates weeds that are present, and thus speeds and eases the harvesting operations. By stopping growth of potato tops the incidence of tuber rot is greatly reduced.

Best results are obtained after growth has passed its peak and adequate skin set has been established. Poor results may be obtained when plants are sprayed while growing actively. NOTE: Active growth of potato tops can continue into late season in part or all of a field if growth has been delayed for any reason during the growing period. Do not harvest potatoes within 24 hours of REGLONE Desiccant application.

Do not apply REGLONE Desiccant during periods of extreme weather conditions. Do not apply REGLONE Desiccant during drought, particularly when the soil is so dry that the tops wilt during the day. After drought conditions, wait for at least three days after the soil has been thoroughly moistened by rain or irrigation. During extremely wet conditions, particularly if the soil is water logged and algal colonies are present on the soil as an indicator of excessive moisture, wait until soil conditions are drier and more closely resemble harvesting conditions. Do not use REGLONE Desiccant if tops have been damaged by a roto-beater or other similar mechanical top beater. Do not use wetters, spreaders or stickers except as directed for the 1.25 L rate in the prairie provinces. When potato tops are especially dense or heavy weed growth is present, use 1100 L of water/ha.

Sweet White Lupins

Apply REGLONE Desiccant once per season for pre-harvest desiccation. Spray when the pods are brown and the internal seed (endosperm) yellow when cut. Wait at least 7 days before harvesting. Do not add wetters, spreaders or stickers to the spray solution. Ground rig application only. Ground spraying may be done with any standard boom sprayer. DO NOT APPLY BY AIR.

Sunflowers

REGLONE Desiccant is an effective desiccant aiding in the harvest of sunflower seed for seed, oil production and confectionery use. If specialized high clearance equipment is available, ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too tall or the ground too soft for ground rigs. Do not apply when the crop is immature.

Combine 15-20 days after spraying.

Vegetables and Field Crops

Stale Seedbed - Pre-emergent to crop, Post-emergent to Weeds on Stale Seedbed

For weed control in beans (all types), beets, carrots, cole crops, corn, onions, peas, cucumbers, potatoes, soybeans and turnips, prepare a stale seedbed by early cultivation (at least two to four weeks in advance of seeding) to stimulate weed growth. Seed without further cultivation and with a

minimum of soil disturbance.

Apply by ground sprayer 2.3 to 4.6 L of REGLONE Desiccant (2.3 L for small weeds, 3 to 5 cm high, and 4.6 L for larger weeds) in 300 L or more of water per hectare to burn off emerged weeds either prior to seeding or after seeding, but three days before crop emergence. If grasses are present, use GRAMOXONE herbicide in place of REGLONE Desiccant.

DO NOT APPLY BY AIR.

Vegetables

Inter-row, Directed Chemical Weeding of Vegetable Crops

For weed control between the rows after crop and weed emergence, use suitable protective equipment and spray nozzle to protect crop from spray. If grasses are present, use GRAMOXONE herbicide in place of REGLONE Desiccant.

DO NOT APPLY BY AIR.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Syngenta Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Syngenta Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Syngenta Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

FABA BEANS

RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
1.25-1.7	Ground	225-550	Use higher spray rates for dense canopies and/or weedy crops	Apply 1 application only for crop desiccation.
1.7-2.3	Aerial	at least 45		<p>Apply when the majority of the plants are ripe and dry. Pods will be fully filled and the bottom pods will be tan or black in colour.</p> <p>For ground or aerial application, use AGRAL 90 as a wetting and spreading agent, at a rate of 1 L for each 1000 L of spray mixture.</p> <p>Observe a 4 – 10 day pre-harvest interval (PHI).</p> <p>Spray pressure should be increased with high clearance sprayers (90 – 100 psi) to ensure adequate coverage of REGLONE Desiccant in the lower stem area. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Desiccation of weeds is completed in a week. THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS. REGLONE Desiccant applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of REGLONE Desiccant for beans as well as the highest registered water volume to obtain the best activity. Timing is vital as premature desiccation will result in yield loss; crops should be closely monitored.</p>

Resistance-Management Recommendations

For resistance management, REGLONE Desiccant is a Group 22 herbicide. Any weed population may contain or develop plants naturally resistant to REGLONE Desiccant and other Group 22 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of REGLONE Desiccant or other Group 22 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.

Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact company representatives at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

SECTION 1: PRODUCT INFORMATION

Product Identifier: REGLONE® DESICCANT

Formulation Number: A12872A

Registration Number: 26396 (Pest Control Products Act)

Product Use: Herbicide. Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3

SDS prepared by: Department of Regulatory & Biological Assessment, Syngenta Canada Inc.

For further information, contact: 1-87-SYNGENTA (1-877-964-3682)

In Case of Emergency, Call: 1-800-327-8633 (FAST MED)

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with UN GHS Version 5.

Hazard Classification(s): Acute Toxicity (Inhalation) – Category 3
 Acute Toxicity (Oral) – Category 4
 Corrosive to Metals – Category 1
 Eye Irritation – Category 2B
 Specific Target Organ Toxicity (STOT) Single Exposure – Category 3
 Specific Target Organ Toxicity (STOT) Repeated Exposure – Category 1

Hazard Symbol(s):



Signal Word: DANGER

Hazard Statement(s): H290 – May be corrosive to metals.
 H302 – Harmful if swallowed.
 H320 – Causes eye irritation.
 H331 – Toxic if inhaled.
 H335 – May cause respiratory irritation.
 H372 – Causes damage to organs through prolonged or repeated exposure.

Precautionary Statement(s):

- Prevention:** P234 – Keep only in original packaging.
P260 – Do not breathe dust/fume/gas/mist/vapours/spray.
P264 – Wash thoroughly after handling.
P270 – Do not eat, drink or smoke when using this product.
P271 – Use only outdoors or in a well-ventilated area.
- Response:** P301+P312 – IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311 – Call a POISON CENTER/doctor if inhaled.
P312 – Call a POISON CENTER/doctor if you feel unwell.
P321 – Specific treatment: See Section 4 of this SDS.
P330 – Rinse mouth.
P337+P313 – If eye irritation persists: Get medical advice/attention.
P390 – Absorb spillage to prevent material-damage.
- Storage:** P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
P405 – Store locked up.
- Disposal:** P501 – Dispose of contents/container to an approved waste disposal plant.
- Other Hazards Which do not Result in GHS Classification:** To avoid risk to human health and the environment, comply with the instructions for use. Flammable hydrogen gas may be formed on contact with aluminum. If spilled and allowed to stand, product can dry to a highly irritating dust.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Common Name	CAS Number	Average % by weight
6,7-dihydrodipyrido[1,2-a:2',1'-C]pyrazinedilum dibromide	Diquat dibromide	85-00-7	39.5

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Safety Data Sheet with you when calling Syngenta, a poison control centre or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [1-800-327-8633 (1-800-FASTMED)], for further information.

Eye Contact: Flush eyes with clean water, holding eyelids apart for a minimum of 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eyes. Call Syngenta, a poison control centre or doctor for treatment advice. IMMEDIATE MEDICAL ATTENTION IS REQUIRED.

Skin Contact: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with running water for a minimum of 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

Inhalation: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

Ingestion: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to do so. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

Most Important Symptoms/Effects, Acute and Delayed:

Inflammation of the mouth, throat and esophagus.

Gastrointestinal discomfort.

Diarrhea.

Toxic if inhaled.

Harmful if swallowed.

Causes eye irritation. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact.

Causes damage to organs through prolonged or repeated exposure.

May cause respiratory irritation.

Indication of Immediate Medical Attention and Special Treatment:

Administer either activated charcoal (100 g for adults or 2 g/kg body weight in children) or Bentonite Clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider hemodialysis or hemoperfusion using charcoal column.

Note: The use of gastric lavage without administration of an absorbent has not shown any clinical benefit.

Eye Contact: Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

To be effective, treatment for ingestion of the product must begin immediately. Treatment consists of binding the active ingredient, diquat, in the gut with suspensions of activated charcoal or bentonite clay to enhance elimination and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis.

SECTION 5: FIRE FIGHTING MEASURES

Suitable (and Unsuitable) Extinguishing Media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist. Cool closed containers exposed to fire with water spray. Do not use a solid water stream as it may scatter and spread the fire.

Specific Hazards Arising from the Product: Flammable hydrogen gas may be formed on contact with aluminum. If the concentrate is spilled and allowed to stand, it can dry to a highly irritating dust. Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Special Protective Equipment and Precautions for Fire-Fighters: Wear full protective clothing and self-contained breathing apparatus. Evacuate non-essential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water run-off can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Control the spill at its source. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Use adequate ventilation and equipment and wear clothing as described in Section 8 and/or the product label.

Environmental Precautions: Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.

Methods and Materials for Containment and Cleaning Up: Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or seep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into a compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: This product reacts with aluminum to produce flammable hydrogen gas. Do not mix or store in containers or systems made of aluminum or having aluminum fittings. Spray solutions should not be mixed, stored or applied in containers other than plastic, plastic-lined steel, stainless steel or fiberglass.

If the concentrate is spilled and allowed to stand, it can dry to a highly irritating dust.

KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours, dust or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Conditions for Safe Storage, Including Any Incompatibilities: Store in original container in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Refer to the product label for specific storage recommendations, including minimum storage temperature and freeze/thaw stability. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL AND/OR ON-FARM APPLICATIONS.

Control Parameters:

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Diquat dibromide	Not established	0.5 mg/m ³ TWA (inhalable); 0.1 mg/m ³ TWA (respirable)	0.5 mg/m ³ TWA (total)***; 0.08 mg/m ³ TWA (respirable)***; 0.5 mg/m ³ TWA (total) (AB/BC/ON/QC); 0.1 mg/m ³ TWA (respirable) (AB/BC/ON/QC)	No	Not established

- * Recommended by Manufacturer
- ** Recommended by NIOSH
- *** Syngenta Occupational Exposure Limit (OEL)
- **** Recommended by AIHA (American Industrial Hygiene Association)
- † Material listed in Ingredient Disclosure List under the Hazardous Products Act

Appropriate Engineering Controls: If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV (threshold limit value). Warehouses, production areas, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

Individual Protection Measures:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

Ingestion: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

Eyes: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Skin: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use a NIOSH certified respirator with any N, R, P or HE filter. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Dark brown liquid.
Formulation Type: Solution concentrate.
Physical State: Liquid.
Odour: Odourless.
Odour Threshold: Not available.
pH: 4 – 6.
Melting Point: Not applicable.
Freezing Point: - 7 °C.
Initial Boiling Point and Boiling Range: Not available.
Flash Point: Not available.
Evaporation Rate: Not available.
Flammability (solid/gas): Not applicable.
Lower Explosive Limit: Not applicable.
Upper Explosive Limit: Not applicable.
Vapour Pressure: Diquat dibromide: 7.50×10^{-8} mmHg @ 20 °C.
Vapour Density: Not available.
Relative Density: 1.20 g/mL @ 20 °C.
Solubility(ies): Diquat dibromide: Miscible @ 20 °C, pH 7 (water).
Partition Coefficient (n-octanol water): Diquat dibromide: - 4.6
Auto-Ignition Temperature: Not available.
Decomposition Temperature: Not available.
Viscosity: 2.3 mPa·s @ 20 °C.

Other Information: Not applicable.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical Stability: Stable under normal use and storage conditions.
Possibility of Hazardous Reactions: This product reacts with aluminum to produce flammable hydrogen gas. If the concentrate is spilled and allowed to stand, it can dry to a highly irritating dust.
Conditions to Avoid: Do not mix or store in containers or systems made of aluminum or having aluminum fittings. Spray solutions should not be mixed, stored, or applied in containers other than plastic, plastic-lined steel, stainless steel or fiberglass.
Incompatible Materials: Corrosive to aluminum. Strong alkalis and anionic wetting agents (e.g. alkyl and alkylaryl sulfonates).
Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Dermal, inhalation, oral.

Symptoms of Acute Exposure: Inflammation of the mouth, throat and esophagus. Gastrointestinal discomfort. Diarrhea. Toxic if inhaled. Harmful if swallowed. Causes eye irritation.

Potential Health Effects: Causes damage to organs through prolonged or repeated exposure. May cause respiratory irritation.

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Slightly Acutely Toxic</u> Oral (LD50 Female Rat)	886 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u> Dermal (LD50 Rat)	> 5,050 mg/kg body weight
Inhalation:	<u>Moderately Acutely Toxic</u> Inhalation (LC50 Rat)	> 0.62 mg/L air – 4 hours
Eye Contact:	<u>Mildly Irritating (Rabbit)</u>	
Skin Contact:	<u>Slightly Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

Specific Target Organ Toxicity (STOT) Single Exposure:

Diquat dibromide: May cause respiratory irritation.

Specific Target Organ Toxicity (STOT) Repeated Exposure:

Diquat dibromide: Ocular effects (cataracts) have been reported following long-term exposure of laboratory animals.

Carcinogenicity:

Diquat dibromide: Did not show carcinogenic effects in animal experiments.

Reproductive Toxicity:

Diquat dibromide: Did not show reproductive toxicity effects in animal experiments.

Mutagenicity:

Diquat dibromide: Did not show mutagenic effects in animal experiments.

Aspiration Hazard:

Diquat dibromide: Not classified as an aspiration hazard.

Toxicity of Other Components:

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

SECTION 12: ECOLOGICAL INFORMATION**Eco-Acute Toxicity:**

Diquat dibromide:

Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀	1.2 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀	6.1 ppm
Birds (5-day dietary – Mallard Duck) LC ₅₀ /EC ₅₀	1,570 ppm

Persistence & Degradability:

Diquat dibromide: Persistent in soil. Persistent in water; partitions to sediment.

Bioaccumulation Potential:

Diquat dibromide: BCF < 500; does not bioaccumulate.

Mobility in Soil:

Diquat dibromide: Low mobility in soil.

Other Adverse Effects: Not applicable.**SECTION 13: DISPOSAL CONSIDERATIONS****Disposal Methods:**

Waste from residues: Refer to the product label for specific disposal/recycling information.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Refer to the product label for specific disposal/recycling information.
Empty remaining contents
Triple rinse containers
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not reuse empty containers.

SECTION 14: TRANSPORT INFORMATION

Land Transport (TDG):

UN Number: UN 1760
Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat dibromide).
Transport Hazard Class: Class 8
Packing Group: PG III
Environmental Hazards: Corrosive liquid, environmentally hazardous.

Water Transport – International (IMDG):

UN Number: UN 1760
Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat dibromide), Marine Pollutant.
Transport Hazard Class: Class 8
Packing Group: PG III
Environmental Hazards: Corrosive liquid, marine pollutant.

Air Transport (IATA-DGR):

UN Number: UN 1760
Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat dibromide).
Transport Hazard Class: Class 8
Packing Group: PG III
Environmental Hazards: Corrosive liquid, environmentally hazardous.

Special Precautions for User:

Not applicable.

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable.

SECTION 15: REGULATORY INFORMATION

There are Canada-specific environmental requirements for handling, use and disposal of this pest control product that are indicated on the product label.

Hazardous Products Act Information:

This product has been classified in accordance with the amended Hazardous Products Act and the Hazard Criteria of the Hazardous Products Regulations (HPR), and the SDS contains all the information required by the HPR.

Hazardous Products Act Information: WHMIS 2015 Classification

This product is exempt under WHMIS 2015.

Pest Control Products Act (PCPA) Registration No.: 26396

Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:



PCPA Label Hazard Communications:

Read the label and booklet before using.

Keep out of reach of children.

Warning: Poison.

Caution – Eye and Skin Irritant.

PCPA Hazard on Label: Poison PCPA Precautionary Symbol:  PCPA Signal Word(s): Warning PCPA Hazard Statement: n/a	GHS Hazard Classification: Acute Toxicity (Inhalation) – Category 3; Acute Toxicity (Oral) – Category 4 GHS Hazard Symbol:  GHS Signal Word: Danger GHS Hazard Statement: H331 – Toxic if inhaled. H302 – Harmful if swallowed.
PCPA Hazard on Label: Eye Irritant PCPA Precautionary Symbol: Not applicable. PCPA Signal Word(s): Caution PCPA Hazard Statement: Not applicable.	GHS Hazard Classification: Eye Irritation – Category 2B GHS Hazard Symbol: Not applicable. GHS Signal Word: Warning GHS Hazard Statement: H320 – Causes eye irritation.
PCPA Hazard on Label: Skin Irritant PCPA Precautionary Symbol: Not applicable. PCPA Signal Word(s): Caution PCPA Hazard Statement: Not applicable.	GHS Hazard Classification: Not applicable. GHS Hazard Symbol: Not applicable. GHS Signal Word: Not applicable. GHS Hazard Statement: Not applicable.

Allergens Contained in the Pest Control Product:

Not applicable.

NPRI Components:

Not applicable.

SECTION 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant SDS. Hazardous properties of all ingredients have been considered in the preparation of this SDS. Read the entire SDS for the complete hazard evaluation of this product.

Full Text of Abbreviations:

AB – Province of Alberta

BC – Province of British Columbia

BCF – Bioconcentration factor

EC₅₀ – Effective concentration, 50%

GHS – Globally Harmonized System of Classification and Labeling of Chemicals

LC₅₀ – Lethal concentration, 50%LD₅₀ – Lethal dose, 50%

IARC – International Agency for Research on Cancer

IATA-DGR – International Air Transport Association

Dangerous Goods Regulations

IMDG – International Maritime Code for Dangerous Goods

NTP – National Toxicology Program

ON – Province of Ontario

OSHA – Occupational Safety & Health Administration

PEL – Permissible Exposure Limit

TDG – Transportation of Dangerous Goods

TLV – Threshold Limit Value

QC – Province of Quebec

SDS – Safety Data Sheet

WHMIS – Workplace Hazardous Materials Information System

Changes since last revision: Layout updated to meet January 2018 PMRA Guidance for Preparing SDSs according to GHS for Pest Control Products in Canada.

Revision Date (Y-M-D): 2019-01-30

Supersedes Date (Y-M-D): 2016-07-29

Prepared by: Syngenta Canada Inc.

1-87-SYNGENTA (1-877-964-3682)

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END OF SAFETY DATA SHEET.

GROUP	22	HERBICIDE
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REGLONE® ION

Solution

AGRICULTURAL

Desiccation of Pulse, Oilseed and Legume Forage Seed Crops, Weed Control in Vegetable and Field Crops, Control of Corn Spurry in Oats and Weed Control in Non-crop Land (rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks).

ACTIVE INGREDIENT:

Diquat ion 200 g per litre
(Present as dibromide)

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

WARNING



POISON

EYE AND SKIN IRRITANT

REGISTRATION NO. **31058**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **1 L to bulk**

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario
N1G 4Z3
Telephone: 1-877-964-3682

WARNING!
***HARMFUL OR FATAL IF SWALLOWED.**
HARMFUL IF INHALED, AVOID INHALING/BREATHING DUST, SPRAYS, ETC.
***CAUSES SUBSTANTIAL EYE INJURY AND SKIN IRRITATION.**
***DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.**
***NEVER TRANSFER TO OTHER CONTAINERS.**
*** KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, **IMMEDIATELY** hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

TOXICOLOGICAL INFORMATION

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If swallowed, give adsorbent suspension, for example either activated charcoal (100g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO₄, Na₂SO₄ or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column.

If in eyes treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

PRECAUTIONS

EXCESSIVE EXPOSURE TO DIQUAT MAY CAUSE A HEALTH HAZARD. FOLLOWING THE DIRECTIONS AND PRECAUTIONS WILL REDUCE EXPOSURE.

DO NOT get on skin or clothing. DO NOT get in eyes. Wear chemical resistant coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, protective eyewear, socks, chemical resistant footwear, and a respirator during mixing, loading and application, clean-up and repair. Chemical-resistant headgear must be worn for overhead applications. Most exposure to pesticides is by absorption through skin, especially from concentrated material handled at the time of mixing and loading. Rolling down the sleeve end of the glove will prevent drips of liquid from running down the glove onto your arm.

Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY. Launder contaminated clothing prior to reuse and separate from household laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Do not eat, drink, handle or use tobacco, or apply cosmetics in areas where there is potential for exposure to this product. Users should wash hands and face before eating, drinking, chewing gum, handling tobacco or using the toilet. Store and wash all protective clothing separately from household laundry.

Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours for all agricultural uses. For all other terrestrial uses, DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

STORE IN ORIGINAL CONTAINER tightly closed in a safe place away from children.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

ENVIRONMENTAL HAZARDS

ANY DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH.

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid applications to areas with a

moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative buffer strip between the treated area and the edge of the water body.

STORAGE

Store in original container, tightly closed, in a safe place away from children.

Store above 0°C. If crystallization occurs because of storage below this, warm to room temperature and agitate gently until reconstituted.

To prevent contamination store this product away from food or feed.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

GROUP	22	HERBICIDE
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REGLONE® ION

Solution

AGRICULTURAL

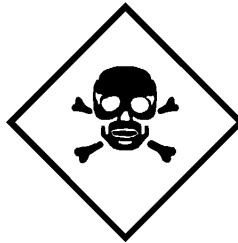
Desiccation of Pulse, Oilseed and Legume Forage Seed Crops, Weed Control in Vegetable and Field Crops, Control of Corn Spurry in Oats and Weed Control in Non-crop Land (rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks).

ACTIVE INGREDIENT:

Diquat ion 200 g per litre
(Present as dibromide)

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

WARNING



POISON

EYE AND SKIN IRRITANT

REGISTRATION NO. **31058**
PEST CONTROL PRODUCTS ACT

Syngenta Canada Inc.
140 Research Lane, Research Park
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N1G 4Z3
Telephone: 1-877-964-3682

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HARMFUL IF INHALED, AVOID INHALING/BREATHING DUST, SPRAYS, ETC.
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***NEVER TRANSFER TO OTHER CONTAINERS.**
*** KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If in eyes, **IMMEDIATELY** hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

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To be effective, treatment for ingestion of the product must begin IMMEDIATELY. If swallowed, give adsorbent suspension, for example either activated charcoal (100g for adults or 2 g/kg body weight for children) or bentonite clay (100 to 150 g for adults or 2 g/kg body weight for children), mixed with a purgative (MgSO_4 , Na_2SO_4 or mannitol). Maintain and monitor electrolyte and fluid status daily. Consider haemodialysis or haemoperfusion using charcoal column.

If in eyes treat symptomatically, using antibiotics and steroids as necessary. Symptoms may develop gradually. Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

The use of supplemental oxygen is contraindicated. Do not administer supplemental oxygen unless the patient develops severe hypoxemia.

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Users should remove personal protective equipment immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. REMOVE CONTAMINATED CLOTHING IMMEDIATELY. Launder contaminated clothing prior to reuse and separate from household laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Do not eat, drink, handle or use tobacco, or apply cosmetics in areas where there is potential for exposure to this product. Users should wash hands and face before eating, drinking, chewing gum, handling tobacco or using the toilet. Store and wash all protective clothing separately from household laundry.

Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours for all agricultural uses. For all other terrestrial uses, DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 12 hours.

STORE IN ORIGINAL CONTAINER tightly closed in a safe place away from children.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

ENVIRONMENTAL HAZARDS

ANY DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH.

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid applications to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative buffer strip between the treated area and the edge of the water body.

STORAGE

Store in original container, tightly closed, in a safe place away from children.

Store above 0°C. If crystallization occurs because of storage below this, warm to room temperature and agitate gently until reconstituted.

To prevent contamination store this product away from food or feed.

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL:

FOR DISPOSAL OF PLASTIC JUGS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

PRODUCT INFORMATION

REGLONE® ION is a non-volatile, fast acting herbicide. It is inactivated on contact with the soil and therefore, has no residual effect. The herbicidal effect varies with weed species, and is dependent on weed maturity and REGLONE ION rate used; therefore repeat applications may be necessary upon certain perennial weeds. Annual weeds are generally killed with one application.

Germination of seed is not affected by REGLONE ION for all crops which could go for seed sale.

REGLONE ION is easily applied in high or low volume sprayers. Very low volume or ultra low volume equipment for aerial application, e.g. rotary atomizer nozzles such as MICRONAIR, are not recommended. Flat fan or hollow cone nozzles are recommended for optimum results. Always use recommended water volume. Complete coverage is essential. **DO NOT USE MIST BLOWERS.**

REGLONE ION is rapidly absorbed by plants, and effectiveness is not reduced by rain falling shortly after treatment. **EFFECTIVENESS OF THE TREATMENT MAY BE ENHANCED WHEN APPLICATION IS MADE ON CLOUDY DAYS OR PRIOR TO PERIODS OF DARKNESS.**

Use clean (non-turbid) water for spraying REGLONE ION. Muddy water will reduce the effectiveness of REGLONE ION.

THE USER MUST BE AWARE THAT THIS PRODUCT ACCELERATES THE NATURAL PROCESS OF CROP DRY DOWN. IN CASES OF ADVERSE WEATHER CONDITIONS SUCH AS HEAVY RAIN, HAIL OR STRONG WIND, THE RESULTANT DAMAGE TO YOUR CROP MAY BE ENHANCED. TAKE NOTE THAT CERTAIN CROPS ARE MORE FRAGILE THAN OTHERS.

Crop waste remaining after harvest (e.g. pea vines, alfalfa stems) may be used as a feed supplement for livestock.

HARVESTING

The use of REGLONE ION facilitates direct combining of many field crops such as lentils, peas, canola, mustard or legumes. Growers who wish to swath desiccated crops should wait until the crop has dried down sufficiently to allow the desiccated crop to be picked up and threshed immediately after swathing. Delaying threshing after swathing desiccated crops will increase shattering and seed loss.

For most crops, harvest can normally commence within 4-10 days after desiccation. However, late fall applications and adverse weather conditions such as rainfall, cool temperatures and high humidity will slow plant desiccation and keep seed moisture levels high which can delay commencement of harvest beyond 10 days after application. When those conditions prevail after REGLONE ION desiccation, commence harvest when plant material is dry and seed moisture level allows efficient harvesting. To minimize seed loss and to maintain seed quality, harvest of desiccated crops should commence as soon as seed moisture reaches the level for normal harvest.

CLEANING SPRAYER AFTER USE

It is important to thoroughly wash equipment after spraying - use a wetting agent (AGRAL® 90 at 60 mL per 100 L of water), flush and spray out, then thoroughly rinse with clean water. When possible, the equipment should be filled with clean water and left overnight. Spray out before storing equipment or using for other materials.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Refer to the following table for a summary of rates, application volumes and growth stages for ground and aerial application of REGLONE ION. The table provides operational information. The applicator is directed to the CROPS-ADDITIONAL NOTES section for any additional information prior to spraying. Ground spraying may be done with any standard boom sprayer.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and parks is minimal. Take into consideration meteorological conditions (e.g. wind speed, wind direction, temperature inversion) and application equipment and sprayer settings used for application.

Mixers and loaders supporting aerial applications are required to use closed systems.

Field sprayer application: DO NOT apply during period of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Aerial application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C) and **humidity** (greater than 50%). DO NOT apply when wind speed is greater than 9 km/h at flying height at the site of application. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length MUST NOT exceed 65% of the wingspan or rotorspan.

For application to rights-of-way, buffer zones for production of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g. wind direction, low wind speed) and spray equipment (e.g. coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The use of an adjuvant is not required.

AGITATE WELL BEFORE USE.

Buffer zones:

NOTE: Applicators may recalculate a site-specific buffer zone for field and aerial applications by combining information on current weather conditions and sprayer configuration. To access the Buffer Zone Calculator, please visit the Pest Management Regulatory Agency web site. See Drift Mitigation under Growers & Commercial Users.

The buffer zones specified in the table below are required between the point of direct application

and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of:			
		Aquatic Habitat of Depths:		Terrestrial Habitat	
		Less than 1 m	Greater than 1 m		
Field sprayer ¹	Beans, canola, flax, lentils, mustard, peas, sunflower, legume forage seed crops, sweet white lupins	5	3	3	
	Vegetable and field crops, fruit, non-cropland (including rights-of-way ² for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)	10	5	5	
Aerial	Beans, legume forage seed crops	Fixed wing	150	80	90
		Rotary wing	100	55	70

¹ For field sprayer application, buffer zones can be reduced with the use of drift-reducing spray shields. When using a spray boom fitted with a shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

² For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zones of the products involved in the tank mixture.

GROUND APPLICATION

Ground spraying may be done with any standard boom sprayer.

AERIAL APPLICATION

Generic Aerial Application Label Instructions - Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in

the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals are required to use a closed system.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical-resistant coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves and footwear, goggles and a respirator during mixing/loading, clean-up and repair, and chemical-resistant headgear for overhead applications.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-87-SYNGENTA (1-877-964-3682) or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 45 litres per hectare.

Refer to ENVIRONMENTAL PRECAUTIONS for additional details.

ENVIRONMENTAL PRECAUTIONS

Apply in weather conditions that will not promote drift. Suggested conditions for good aerial application are **moderate temperatures** (less than 25°C), **humidity** (greater than 50%), and **wind** 3.5-9 kph at flying height at the site of application. Do not apply in dead calm conditions or when temperature inversion is likely (e.g. evening when warm air is rising from crop or morning when sunshine warms the soil and air rises from the field).

Aircraft application is not recommended where wetlands or wildlife cover might be oversprayed. Avoid spray drift onto adjacent crops, shelter belts and wildlife cover. Avoid overspraying or drift onto sloughs.

Since herbicide application may damage the habitat of migratory birds and other wildlife species, do not use aerial application in fields where wetlands or other good wildlife cover might be oversprayed;

this includes sloughs and dry slough margins in western Canada. Use ground sprayers and leave an unsprayed margin of 15 m around the border of all sloughs.

Refer to 'DIRECTIONS FOR USE – Buffer zones' for more information.

TABLE 1

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES (See "CROPS - Additional notes" below)
Field Crops					
Beans-White & Red Kidney, Soybeans and Adzuki beans	1.50-2.04	Ground	225-550	Full canopy, few weeds (normal crop)	Apply at 80-90% natural leaf defoliation and at least 80% of the pods have turned yellow. Consider pod turn only when determining application time in years when heavy vine growth is anticipated.
	2.04-2.52	Aerial	at least 45		
	2.04	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	
	2.76	Aerial	at least 45		
Canola	1.50-2.04	Ground	225-550	Full canopy, few weeds (normal crop)	Apply when 90% or more of the seed has turned brown. Combine no later than 14 days after application.
	2.04	Aerial	at least 45		
	2.04	Ground	225-550	Very dense canopy and/or weedy crop	
	2.76	Aerial	at least 45		
Chickpeas	1.50-2.04	Ground	225-550	Full canopy, few weeds (normal crop)	See "CROPS – Additional notes" below for specific information on Desi and Kabuli types.
	2.04	Aerial	at least 45		
	2.04	Ground	225-550	Heavy crop stand and/or weedy crop and/or heavy vine regrowth	

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES (See "CROPS - Additional notes" below)
Flax (including low linolenic acid varieties)	1.50-2.04	Ground	225-550 at least 45	Full canopy, few weeds (normal crop)	Apply when crop is at 75% boll turn stage. Harvest when flaxseed tests 'dry'.
	2.04	Aerial			
	2.04	Ground	225-550	Very dense canopy and/or weedy crop	
	2.76	Aerial	at least 45		
Legumes (alfalfa, birdsfoot trefoil, red clover, white clover, and aliske clover) Seed Crops	2.04-3.24	Ground	225-550 at least 45	Full canopy and/or weedy crop	Seed crops only. Apply when the majority of the pods of individual plants are ripe but before they shatter. To prevent pod shattering and loss of seed the interval between spraying and harvest should not exceed 7 days.
	2.0-3.24	Aerial			
	3.24	Ground	225-550	Very dense canopy and/or weedy crop and/or secondary regrowth	
	3.24	Aerial	at least 45		
Lentils	1.50-2.04	Ground	225-550 at least 45	Full canopy, few weeds (normal crop)	Apply REGLONE ION at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and rattle.
	2.04	Aerial			
	2.04	Ground	225-550	Very dense canopy and/or weedy crop	
	2.76	Aerial	at least 45		
Mustard (condiment type only)	1.50-2.04	Ground	225-550 at least 45	Full canopy, few weeds (normal crop)	Apply when crop is at 75% seed turn (to mainly brown) stage.
	2.04	Aerial			
	2.04	Ground	225-550	Very dense canopy and/or weedy crop	Combine no later than 14 days after application.
	2.76	Aerial	at least 45		
Oats - Corn spurry control	1.08	Ground	225-335	Corn spurry less than 8 cm high	Do not use wetters, spreaders or stickers.
	1.50	Ground	225-335	Corn spurry more than 8 cm high	Apply when oats are 8-15 cm in height. DO NOT APPLY BY AIR.
Peas - field (dry)	1.50-2.04	Ground	225-550 at least 45	Full canopy, few weeds (normal crop)	Apply REGLONE ION when bottom pods of the majority of the plants are ripe & dry with the seeds detached from the pods. Seed in less mature pods will split when squeezed.
	2.04	Aerial			
	2.04	Ground	225-550	Very dense canopy and/or weedy crop	
	2.76	Aerial	at least 45		

CROPS	RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES (See "CROPS - Additional notes" below)
Sweet White Lupins	2.76	Ground	225-550	Full canopy, few weeds (normal crop)	Apply when the pods are brown and the internal seed (endosperm) is yellow when cut. DO NOT APPLY BY AIR.
Sunflowers	1.50-2.04	Ground	225-550 at least 45	Full canopy, few weeds (normal crop)	Apply when seeds reach maturity (20-50% moisture in the seed and hull). Combine 15-20 days after spraying.
	2.04	Aerial			
	2.04	Ground	225-550	Very dense canopy and/or weedy crop	
2.76	Aerial	at least 45			
Vegetables & Field Crops					
Stale seedbed	2.76	Ground	at least 300	Small weeds (3-5 cm high)	Stale Seedbed - Pre-emergent to crop, post emergent weeds.
	5.52	Ground	at least 300	Large weeds (greater than 5 cm high)	Burn off weeds either prior to, or after seeding, but 3 days before crop emergence. If grasses are present, use GRAMOXONE® in place of REGLONE ION. DO NOT APPLY BY AIR.
Vegetables					
Inter-row directed weeding	2.76-5.52	Ground	900-1100		If grasses are present use GRAMOXONE in place of REGLONE ION. DO NOT APPLY BY AIR.
Fruit					
Perennial grass suppression under apple trees	5.52	Ground	225-675		DO NOT APPLY BY AIR.
Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)					
Weed Control in non-crop land	2.76-5.52	Ground	550-1100		Use higher rates and higher volume of water for dense weed growth. Thoroughly wet foliage. DO NOT APPLY BY AIR.

CROPS - ADDITIONAL NOTES

Beans

White and Red-Kidney Beans, Soybeans and Adzuki Beans

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Spray at 80-90% natural leaf defoliation and when at least 80% of the pods have turned yellow. In years of excessive vine re-growth, consider pod colour only for the timing of REGLONE ION application. Desiccation of weeds is completed in a week. **THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS.** Direct combine or pull beans when they are considered ready. Combining of dry beans and Adzuki beans can often be done the day of pulling; however, this is dependent on the condition of the beans.

REGLONE ION applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of REGLONE ION for beans as well as the highest registered water volume to obtain the best activity.

Canola

This treatment does not mature canola. REGLONE ION is an effective desiccant aiding in the harvest of canola. Speed of pod and stem dry down will vary depending on spray coverage, environmental conditions and plant growth stage at application; however pod and stem kill will take place 7-10 days after application.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Apply when 90% or more of seed has turned brown; application of REGLONE ION prior to this stage can result in high levels of green seed in the sample.

Commence harvest as soon as the crop can be combined since significant yield loss in standing desiccated canola crops can occur due to pod drop and pod shattering. This yield loss can be greater if harvest of the standing desiccated crop is delayed or when unfavourable weather conditions including high winds and heavy rainfall occur.

Germination of seed is not affected by REGLONE ION desiccation.

Chickpeas

This treatment does not mature chickpeas. Chickpea swaths are at risk to wind loss, and straight cutting is preferred. Timing is vital as premature desiccation will result in yield and quality loss. Crops should be closely monitored for correct stage of application. Application of REGLONE ION may cause the small stem attaching the pod to the chickpea plant to become brittle and lead to increased pod loss. Wait 4 to 7 days before combining the crop. It may be advantageous to harvest, and bin separately, chickpea grain from late maturing areas of the field. Use of higher water volumes will provide more complete coverage.

For Desi type, apply at the time swathings would normally commence, when the majority of plants are yellow and most pods are mature and seeds have turned from green to yellow or brown. Upper part

of plant may still be green.

For Kabuli type, apply when the majority of plants and pods are ripe and dry with seeds turned from green to white or tan, and detached from the pods. Dry down is less complete in Kabuli type due to its thick pod wall.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage.

Germination of seed is not affected by REGLONE ION desiccation.

Flax (including low linolenic acid varieties)

REGLONE ION is an effective desiccant aiding in the harvest of flax (including low linolenic acid varieties). Desiccation reduces the period of time from maturity to harvest, reduces wear and tear on harvesting equipment, reduces harvest time, decreases the moisture content of the seed and eliminates the need for swathing.

Spray when the crop is at the 75% boll turn stage (normal swathing time).

Do not apply before 75% boll turn. Harvest when the flaxseed tests 'dry'.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage.

Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Germination of seed is not affected by REGLONE ION desiccation of the crop.

Fruit

Perennial Grass Suppression Under Apple Trees

See Table 1 for rates.

DO NOT APPLY BY AIR.

Legumes

Alfalfa, Birdsfoot Trefoil, Red Clover, White Clover, and Alsike Clover Seed Crops

To prevent seed pod shattering and loss of seed, the interval between spraying and harvest should not exceed 7 days. NOTES: 1) Birdsfoot trefoil plants under drought or disease stress may be subject to damage when desiccated with REGLONE ION. 2) Do not use REGLONE ION if a residual herbicide has been used on the legumes within the past 12 months.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Lentils

Apply REGLONE ION at the time swathing would normally commence. This is when the lowermost pods are yellow-brown and seeds rattle. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs.

REGLONE ION applied to lentils under prolonged drought stress, rainfall, cool temperatures and high humidity will provide slower and less effective desiccation compared to applications made under normal growing conditions. If these conditions exist prior to application, use the highest registered rate of REGLONE ION for lentils as well as the highest registered water volume to obtain the best activity. Harvest delays should be expected.

Mustard (condiment type only)

Spray when the crop is at the 75% seed turn (to mainly brown) stage. Do not apply when the crop is immature or past the recommended stage of maturity. Commence combining no later than 14 days after application. **NOTE:** Pod drop and some shattering can occur in high winds in the standing crop.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Apply by means of an aircraft fitted to apply uniform spray coverage.

Non-Crop Land (Rights-of-way for transportation or utility corridors, airports, wasteland, garbage dumps and industrial parks)

Weed Control in Non-Crop Land

For the top kill of weeds, REGLONE ION will provide a rapid top-kill of weeds and grasses when applied as a foliar spray. REGLONE ION may be added to tank mixes of certain soil sterilants where immediate top kill and long term soil sterilization is required. The combined use with soil sterilants should be based on previous experimental experience, and recommendations on the label of the residual herbicide.

DO NOT APPLY BY AIR.

Oats - Corn Spurry Control

REGLONE ION, when applied by ground sprayer as recommended in Table 1 will burn corn spurry and give a temporary burning of the exposed oats leaves, but the plants quickly recover. Do not use any surfactant.

DO NOT APPLY BY AIR.

Peas

This treatment does not mature peas. Because pea swaths are at considerable risk to wind losses, straight cutting should be considered. Timing is vital as premature desiccation will result in yield loss: crops should be closely monitored. Commence combining when the peas test "dry".

REGLONE ION applied to peas under prolonged drought stress will provide slower and less

effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of REGLONE ION for peas as well as the highest registered water volume to obtain the best activity.

With indeterminate varieties, apply REGLONE ION when the lower pods of most plants are ripe, dry, translucent and shrunken, with enclosed seeds detached from the pods. Middle pods will be somewhat shrunken and leathery, and the seed will split when squeezed. Desiccation will dry out upper pods and green plant growth, leaving bottom and middle pods with the highest quality seed.

With determinate varieties, REGLONE ION should be applied when the top and upper middle pods are somewhat shrunken and leathery and seeds in these pods split when squeezed. The lower middle and bottom pods are ripe and dry, translucent and shrunken, with seeds enclosed in these pods detached.

Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too dense or the ground too soft for ground rigs. Ensure aircraft is fitted to apply uniform spray coverage.

Sweet White Lupins

Apply REGLONE ION once per season for pre-harvest desiccation. Spray when the pods are brown and the internal seed (endosperm) yellow when cut. Wait at least 7 days before harvesting. Do not add wetters, spreaders or stickers to the spray solution. Ground rig application only. Ground spraying may be done with any standard boom sprayer. DO NOT APPLY BY AIR.

Sunflowers

REGLONE ION is an effective desiccant aiding in the harvest of sunflower seed for seed, oil production and confectionery use. If specialized high clearance equipment is available, ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used where the crop is too tall or the ground too soft for ground rigs. Do not apply when the crop is immature.

Combine 15-20 days after spraying.

Vegetables and Field Crops

Stale Seedbed - Pre-emergent to crop, Post-emergent to Weeds on Stale Seedbed

For weed control in beans (all types), beets, carrots, cole crops, corn, onions, peas, cucumbers, potatoes, soybeans and turnips, prepare a stale seedbed by early cultivation (at least two to four weeks in advance of seeding) to stimulate weed growth. Seed without further cultivation and with a minimum of soil disturbance.

Apply by ground sprayer 2.76 to 5.52 L of REGLONE ION (2.76 L for small weeds, 3 to 5 cm high, and 5.52 L for larger weeds) in 300 L or more of water per hectare to burn off emerged weeds either prior to seeding or after seeding, but three days before crop emergence. If grasses are present, use GRAMOXONE herbicide in place of REGLONE ION.

DO NOT APPLY BY AIR.

Vegetables

Inter-row, Directed Chemical Weeding of Vegetable Crops

For weed control between the rows after crop and weed emergence, use suitable protective equipment and spray nozzle to protect crop from spray. If grasses are present, use GRAMOXONE herbicide in place of REGLONE ION.

DO NOT APPLY BY AIR.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Syngenta Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Syngenta Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Syngenta Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

FABA BEANS				
RATE (L/ha)	APPLICATION METHOD	APPLICATION VOLUME (L/ha)	CROP CONDITION	NOTES
1.50-2.04	Ground	225-550	Use higher spray rates for dense canopies and/or weedy crops	Apply 1 application only for crop desiccation.
2.04-2.76	Aerial	at least 45		<p>Apply when the majority of the plants are ripe and dry. Pods will be fully filled and the bottom pods will be tan or black in colour.</p> <p>Observe a 4 – 10 day pre-harvest interval (PHI).</p> <p>Spray pressure should be increased with high clearance sprayers (90 – 100 psi) to ensure adequate coverage of REGLONE ION in the lower stem area. Ground sprayer application will facilitate use of higher water volumes and provide more complete coverage. Aerial application may be used with aircraft fitted to apply uniform spray coverage. Desiccation of weeds is completed in a week. THIS TREATMENT DOES NOT MATURE BEANS NOR DOES IT LOWER MOISTURE CONTENT OF BEANS. REGLONE ION applied to beans under prolonged drought stress will provide slower and less effective desiccation compared to applications made under normal growing conditions. If prolonged drought stress conditions exist prior to application, use the highest registered rate of REGLONE ION for beans as well as the highest registered water volume to obtain the best activity. Timing is vital as premature desiccation will result in yield loss: crops should be closely monitored.</p>

Resistance-Management Recommendations

For resistance management, REGLONE ION is a Group 22 herbicide. Any weed population may contain or develop plants naturally resistant to REGLONE ION and other Group 22 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of REGLONE ION or other Group 22 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.

Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact company representatives at 1-877-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

AGRAL[®], GRAMOXONE[®] and REGLONE[®] are trademarks of a Syngenta Group Company.

REGLONE ION

Version 1.3 Revision Date: 05/10/2019 SDS Number: S00006835050 This version replaces all previous versions.

SECTION 1. IDENTIFICATION

Product name : REGLONE ION
Design code : A1412H
Product Registration number : 31058
Other means of identification : No data available

Manufacturer or supplier's details

Company name of supplier : Syngenta Canada Inc.
Address : 140 Research Lane, Research Park
Guelph ON N1G 4Z3
Canada
Telephone : 1-87-SYNGENTA (1-877-964-3682)
Telefax : 1-519-823-0504
Emergency telephone number : 1-800-327-8633 (FAST MED)

Recommended use of the chemical and restrictions on use

Recommended use : Herbicide

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the Hazardous Products Regulations**

Corrosive to metals : Category 1
Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 3
Eye irritation : Category 2A
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)
Specific target organ toxicity - repeated exposure : Category 1 (Eyes)

GHS label elements

Hazard pictograms :



REGLONE ION

Version 1.3 Revision Date: 05/10/2019 SDS Number: S00006835050 This version replaces all previous versions.

- Signal word : Danger
- Hazard statements : H290 May be corrosive to metals.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
H372 Causes damage to organs (Eyes) through prolonged or repeated exposure.
- Precautionary statements : **Prevention:**
P234 Keep only in original packaging.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear eye protection/ face protection.
- Response:**
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 Get medical advice/ attention if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P390 Absorb spillage to prevent material damage.
- Storage:**
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
- Disposal:**
P501 Dispose of contents/ container to an approved waste disposal plant.

Additional Labelling

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity:
18.1624 %

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components

Chemical name	CAS-No.	Concentration (% w/w)
diquat dibromide	85-00-7	31.9335
Alkylamine ethoxylate	70955-14-5	>= 1 - < 5

REGLONE ION

Version 1.3	Revision Date: 05/10/2019	SDS Number: S00006835050	This version replaces all previous versions.
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Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- | | | |
|---|---|--|
| General advice | : | Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment. |
| If inhaled | : | Move the victim to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Keep patient warm and at rest.
Call a physician or poison control centre immediately. |
| In case of skin contact | : | Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a physician.
Wash contaminated clothing before re-use. |
| In case of eye contact | : | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Remove contact lenses.
Immediate medical attention is required. |
| If swallowed | : | If swallowed, seek medical advice immediately and show this container or label.
Do NOT induce vomiting. |
| Most important symptoms and effects, both acute and delayed | : | inflammation of the mouth, throat and oesophagus
Gastrointestinal discomfort
Diarrhoea |
| Notes to physician | : | Administer either activated charcoal (100g for adults or 2g/kg body weight in children) or Fuller's Earth (15% solution; 1 litre for adults or 15ml/kg body weight in children).
NOTE: The use of gastric lavage without administration of an adsorbent has not shown any clinical benefit.
Eye contact:- Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred. |

SECTION 5. FIREFIGHTING MEASURES

- | | | |
|--------------------------------|---|---|
| Suitable extinguishing media | : | Extinguishing media - small fires
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Extinguishing media - large fires
Alcohol-resistant foam
or
Water spray |
| Unsuitable extinguishing media | : | Do not use a solid water stream as it may scatter and spread fire. |

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- Specific hazards during fire-fighting : As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.
- Further information : Do not allow run-off from fire fighting to enter drains or water courses.
Cool closed containers exposed to fire with water spray.
- Special protective equipment for firefighters : Wear full protective clothing and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.
Do not flush into surface water or sanitary sewer system.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Clean contaminated surface thoroughly.
Clean with detergents. Avoid solvents.
Retain and dispose of contaminated wash water.

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Avoid contact with skin and eyes.
When using do not eat, drink or smoke.
For personal protection see section 8.
Spray solutions should not be mixed, stored or applied in containers other than plastic, plastic-lined steel, stainless steel or fiberglass.
- Conditions for safe storage : No special storage conditions required.
Keep containers tightly closed in a dry, cool and well-ventilated place.
Keep out of the reach of children.
Keep away from food, drink and animal feedingstuffs.
- Further information on storage stability : Physically and chemically stable for at least 2 years when stored in the original unopened sales container at ambient temperatures.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
diquat dibromide	85-00-7	TWA (Total)	0.5 mg/m ³	CA AB OEL
		TWA (Respirable)	0.1 mg/m ³	CA AB OEL
		TWA	0.5 mg/m ³	CA ON OEL
		TWA (Respirable fraction)	0.1 mg/m ³	CA ON OEL
		TWA (Inhalable fraction)	0.5 mg/m ³ (the cation)	ACGIH
		TWA (Respirable fraction)	0.1 mg/m ³ (the cation)	ACGIH

Engineering measures : THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THE PRODUCT. FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

Maintain air concentrations below occupational exposure standards.

Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Suitable respiratory equipment:
Respirator with a half face mask
The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection

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- Remarks : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Tightly fitting safety goggles
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Remove and wash contaminated clothing before re-use.
Wear as appropriate:
Impervious clothing
- Protective measures : The use of technical measures should always have priority over the use of personal protective equipment.
When selecting personal protective equipment, seek appropriate professional advice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Colour : red brown to dark brown
- Odour : No data available
- Odour Threshold : No data available
- pH : 6 - 6.5
- Melting point/range : No data available
- Boiling point/boiling range : No data available
- Flash point : > 103 °C
- Evaporation rate : No data available
- Flammability (solid, gas) : No data available

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Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapour pressure : No data available

Relative vapour density : No data available

Density : 1.17 g/cm³ (25 °C)

Solubility(ies)
Solubility in other solvents : soluble
Solvent: Water

Partition coefficient: n-octanol/water : No data available

Auto-ignition temperature : > 650 °C

Decomposition temperature : No data available

Viscosity
Viscosity, dynamic : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : See section "Possibility of hazardous reactions".

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Corrosive in contact with metals

Conditions to avoid : No decomposition if used as directed.

Incompatible materials : Aluminium
Mild steel
Iron

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Ingestion
Inhalation

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Skin contact

Eye contact

Acute toxicity

Product:

- Acute oral toxicity : LD50 (Rat, female): 1,049 mg/kg
- Acute inhalation toxicity : LC50 (Rat, male and female): 0.64 mg/l
 Exposure time: 4 h
 Test atmosphere: dust/mist
 Remarks: The toxicological data has been taken from products of similar composition.
- Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg

Components:

diquat dibromide:

- Acute oral toxicity : LD50 (Rat, female): 399.75 mg/kg
 LD50 (Rat, male): 414.69 mg/kg
 Remarks: Lethal dose for man is approximately 4-6g of diquat (equivalent to approximately 60mg/kg). May cause nausea, vomiting, abdominal pain and diarrhoea within a few hours of swallowing. Ulceration of lips, mouth, throat and intestine may follow within 24-48 hours. Kidney failure and liver damage may occur; in severe cases circulatory collapse; coma or death/cardiac arrest.
- Acute inhalation toxicity : LC50 (Rat, male): 0.226 mg/l
 Exposure time: 4 h
 Test atmosphere: dust/mist
- Acute dermal toxicity : LD50 (Rat, male and female): > 792 mg/kg
 Assessment: The substance or mixture has no acute dermal toxicity

Alkylamine ethoxylate:

- Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.

Skin corrosion/irritation

Product:

- Species : Rabbit
 Result : Mild skin irritation

Components:

diquat dibromide:

- Species : Rabbit
 Result : Irritating to skin.

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Remarks : Expert judgement
May also cause discoloration, cracking and loss of nails. Normal growth follows without delay.

Alkylamine ethoxylate:

Result : Skin irritation

Serious eye damage/eye irritation**Product:**

Species : Rabbit
Result : Eye irritation

Components:**diquat dibromide:**

Species : Rabbit
Result : Eye irritation
Remarks : Expert judgement
This material has a delayed eye irritation effect. May lead to ulceration of cornea and conjunctival epithelium giving rise to secondary infection. Although healing may be slow, the injury is superficial and with proper medical care recovery will be complete, even in severe cases.

Alkylamine ethoxylate:

Result : Risk of serious damage to eyes.

Respiratory or skin sensitisation**Product:**

Test Type : Buehler Test
Species : Guinea pig
Result : Did not cause sensitisation on laboratory animals.

Components:**diquat dibromide:**

Species : Guinea pig
Result : May cause sensitisation by skin contact.

Germ cell mutagenicity**Components:****diquat dibromide:**

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

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Carcinogenicity

Components:

diquat dibromide:

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

Reproductive toxicity

Components:

diquat dibromide:

Reproductive toxicity - Assessment : No toxicity to reproduction

STOT - single exposure

Components:

diquat dibromide:

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT - repeated exposure

Components:

diquat dibromide:

Target Organs Assessment : Eyes
 : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.
 Remarks : Ocular effects (cataracts) have been reported following long term oral exposure of laboratory animals.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

diquat dibromide:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): Calculated 10.46 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): Calculated 2.49 mg/l
 Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Navicula pelliculosa (Freshwater diatom)): Calculated 0.001148 mg/l
 Exposure time: 96 h

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NOEC (Navicula pelliculosa (Freshwater diatom)): Calculated
0.0005945 mg/l
Exposure time: 96 h

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): Calculated
0.04726 mg/l
Exposure time: 34 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): Calculated 0.0504 mg/l
Exposure time: 21 d

Persistence and degradability

Components:

diquat dibromide:

Stability in water : Degradation half life: > 30 d
Remarks: Persistent in water.

Bioaccumulative potential

Components:

diquat dibromide:

Bioaccumulation : Remarks: Low bioaccumulation potential.

Mobility in soil

Components:

diquat dibromide:

Distribution among environmental compartments : Remarks: immobile

Stability in soil : Dissipation time: 11 - 41 y
Percentage dissipation: 50 % (DT50)
Remarks: Persistent in soil.

Other adverse effects

Components:

diquat dibromide:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

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SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : Refer to the product label for specific disposal/recycling information
- Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.
- Contaminated packaging : Refer to the product label for specific disposal/recycling information
- Empty remaining contents.
Triple rinse containers.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

- UN number : UN 1760
Proper shipping name : CORROSIVE LIQUID, N.O.S. (DIQUAT DIBROMIDE)
Class : 8
Packing group : III
Labels : 8

IATA-DGR

- UN/ID No. : UN 1760
Proper shipping name : Corrosive liquid, n.o.s. (DIQUAT DIBROMIDE)
Class : 8
Packing group : III
Labels : Corrosive
Packing instruction (cargo aircraft) : 856
Packing instruction (passenger aircraft) : 852

IMDG-Code

- UN number : UN 1760
Proper shipping name : CORROSIVE LIQUID, N.O.S. (DIQUAT DIBROMIDE)
Class : 8
Packing group : III
Labels : 8

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EmS Code : F-A, S-B
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations**TDG**

UN number : UN 1760
Proper shipping name : CORROSIVE LIQUID, N.O.S.
(DIQUAT DIBROMIDE)
Class : 8
Packing group : III
Labels : 8
ERG Code : 154
Marine pollutant : yes(DIQUAT DIBROMIDE)

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act. These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. The following is the hazard information required on the pest control product label: Read the label, authorised under the Pest Control Products Act, prior to using or handling the pest control product

There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label.

Warning

Skull and crossbones

poison

Eye irritant

Skin irritant

The components of this product are reported in the following inventories:

DSL : This product contains the following components that are not on the Canadian DSL nor NDSL.

diquat (ion)

Canadian lists

No substances are subject to a Significant New Activity Notification.

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SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	:	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA ON OEL	:	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
ACGIH / TWA	:	8-hour, time-weighted average
CA AB OEL / TWA	:	8-hour Occupational exposure limit
CA ON OEL / TWA	:	Time-Weighted Average Limit (TWA)

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Revision Date : 05/10/2019

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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CA / EN



Rexade™ A Herbicide

with ARYLEX™ ACTIVE

GROUP	2	4	HERBICIDES
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For postemergent control of annual grasses and broadleaf weeds in spring wheat, durum wheat and winter wheat

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT:	halauxifen, present as methyl ester	5%
	pyroxsulam	15%
Wettable granules		

REGISTRATION NUMBER 32520 PEST CONTROL PRODUCTS ACT

CAUTION - EYE IRRITANT

NET CONTENTS: 100 g - bulk

Dow AgroSciences Canada Inc.
2400, 215 – 2nd Street SW
Calgary, Alberta
T2P 1M4
1-800-667-3852

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. During mixing, loading, application, clean-up and repair workers must wear coveralls over long sleeved shirt and long pants, chemical-resistant gloves, shoes plus socks as well as goggles or face shield. Avoid contact with skin, eyes and clothing. Wash concentrate from skin or eyes IMMEDIATELY. After use, wash hands and other exposed skin. Avoid breathing spray mist. Apply only when there is a very low risk of drift to areas of human habitation or activity such as houses, cottages, schools and recreational areas. To determine the risk of drift, take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on the judgment of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Store in original containers in a secure, dry heated storage. Do not allow contamination of seeds, plants, fertilizers or other pesticides. Do not contaminate food, feedstuffs or domestic water supplies. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste. To prevent contamination store this product away from food or feed.

DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

GENERAL INFORMATION

Rexade A Herbicide is a selective postemergence herbicide for the control of annual grasses and broadleaved weeds in spring wheat, durum wheat and winter wheat. Rexade A Herbicide is mixed with water and applied as a uniform broadcast spray.

Rexade A Herbicide **MUST** be applied postemergence, to the main flush of actively growing weeds. Warm, moist growing conditions promote active weed growth and enhance the activity of Rexade A Herbicide by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds. See "DIRECTIONS FOR USE" section of this label for complete use details.

Rexade A Herbicide stops growth of susceptible weeds rapidly. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent on weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

MODE OF ACTION

Rexade A Herbicide contains a Group 2 and a Group 4 mode of action herbicide. The Group 2 mode of action herbicide inhibits the production of the ALS enzyme in plants. This enzyme is essential for the production of certain amino acids required for plant growth. The Group 4 mode of action herbicide disrupts normal plant growth regulation resulting in death of susceptible plants.

GENERAL USE PRECAUTIONS**Sensitive Plants**

Do not apply Rexade A Herbicide directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

Non-Target Sites

Do not apply where proximity of susceptible crops or other desirable plants is likely to result in exposure to spray or spray drift. See Environmental Hazards section of the label.

Crop Rotation

Fields can be seeded 11 months following an application of Rexade A, with the following crops: spring barley, spring wheat, oats, canola, flax, brown and yellow mustard, canola quality Brassica juncea, field peas and soybean or fields can be summerfallowed. Sunflowers and potatoes (except seed potatoes) can be planted 10 months and lentils 22 months after application of Rexade A.

This product has potential to leach. Do not apply excessive irrigation. Do not use in successive years at the same site.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or www.corteva.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

Spray Equipment Precaution

Do not apply through any type of irrigation system.

To Reduce Spray Drift:

1. Use nozzles delivering higher volumes and coarser droplets.
2. Use low pressures (200 to 275 kPa).
3. Use 100 L/ha of spray solution.
4. Spray when the wind velocity is 15 km/hr or less.
5. Spot treatments should only be applied with a calibrated boom to prevent over-application.

Sprayer Clean-Out Instructions

To avoid injury to desirable plants, thoroughly clean equipment used to apply this product before re-use or using it to apply other chemicals.

1. Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. First rinse:
 - Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
 - Agitate and circulate for 15 minutes, and flush through booms and hoses.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.
3. Second rinse:
 - Fill the tank with clean water.
 - Add All Clear Spray Tank Decontaminator as per manufacturer's recommendations while filling the tank with clean water.
 - Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation. Flush the solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - If possible, let the solution stand in the sprayer tank and booms for an extended period of time, overnight if possible.
 - After flushing the boom and hoses, drain tank completely.
 - Remove nozzles and screens and clean separately with a cleaning agent or an ammonia solution (100 mL in 10 L water).
4. Third rinse:
 - Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.

DIRECTIONS FOR USE

READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. DO NOT APPLY TO CROPS UNDERSEEDING WITH LEGUMES.

Do not enter or allow worker entry into treated area for 12 hours following application or until sprays have dried.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

APPLICATION METHODS

(1) Ground Application

Using ground equipment, apply Rexade A as a broadcast treatment at the recommended rate as specifically listed in the DIRECTIONS FOR USE section of this label.

Field sprayer application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

(2) Aerial Application

Directions for Use

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. **Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.**

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices or a GPS system.

Aerial application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good agricultural practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, socks and shoes and protective eyewear (goggles or face shield) during mixing, loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

REXADE A HERBICIDE APPLIED ALONE

Crops Registered

spring wheat, durum wheat and winter wheat

Application Directions

For control of the following listed weeds, apply Rexade A Herbicide at 100 g/ha in 50 - 100 L per hectare of water by ground or in a minimum of 30 L per hectare by air. Apply Intake Adjuvant at 0.5 to 1.0% v/v (5 L Intake Adjuvant /1000 L spray mixture to 10 L Intake Adjuvant /1000 L spray mixture) or a non-ionic surfactant (NIS) at 0.25% V/V. Use the higher rate of Intake Adjuvant under adverse conditions, such as dense weed population, late weed growth stage, or poor environmental conditions. Apply in the spring from the 2 leaf to just prior to flag emergence stage in spring wheat, durum wheat and winter wheat (do not apply to wheat with less than 2 fully expanded leaves). Apply when weeds are actively growing at the 1-8 leaf stage, unless otherwise specified. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds.

Weeds Controlled or Suppressed by Rexade A Herbicide

Weeds Controlled:

alfalfa, volunteer (up to 25 cm in height)	hemp nettle ^{†††}
American dragonhead (up to bud stage and 15 cm in height)	henbit (up to bud stage and 15 cm in height)
barnyard grass (1-5 leaf)	lamb's-quarters ^{†††}
brome, Japanese (1-6 leaf)	oats, wild (up to 4 leaf, 2 tiller)
buckwheat, wild	pigweed, red-root ^{†††}
canola, volunteer [†] (1-6 leaf)	ragweed, common (up to 6-leaf stage) ^{†††}
chickweed, common (up to 10 cm)	round-leaved mallow (up to 6 leaf stage, <10 cm in size)
cleavers ^{†††} (1 to 9 whorl)	smartweed (lady's-thumb, 1-5 leaf)
corn spurry (up to 2 whorl stage, <10 cm in height)	shepherd's purse (up to 30 cm tall)
cow cockle	stinkweed (up to 30 cm tall)
fleabane, Canada (up to 15 cm in height) ^{††††}	white cockle (season-long control, up to the bud stage, less than 15 cm in height)
flixweed (up to 10 cm)	stork's-bill (up to the 8-leaf stage)
foxtail, yellow (1-5 leaf)	velvetleaf (up to the 5-leaf stage)
flax, volunteer (up to 15 cm in height)	

Weeds Suppressed:

brome, downy (2-6 leaf, 4 tillers)	kochia ^{††, †††}
Canada thistle (up to 30 cm tall, prebud)	night flowering catchfly (up to bolting stage, 15 cm in height)
dandelion (seedlings and over-wintered rosettes less than or equal to 20 cm)	Russian thistle (up to 10 cm tall)
foxtail, green (1-5 leaf)	sow-thistle, annual (up to 5 leaf stage)

[†]will not control volunteer Imidazolinone-tolerant canola

^{††} light to moderate infestations (up to 150 plants/m³; up to 15 cm in height)

^{†††} including Group 2 resistant biotypes

^{††††} including Group 2 and 9 resistant biotypes

Mixing Instructions

1. Fill sprayer tank 1/2 full of water
2. Start sprayer tank agitation
3. Add the required amount of Rexade A Herbicide
4. Complete filling the sprayer tank with sufficient water to spray 50-100 L of spray mixture per hectare by ground and 30 L of spray mixture by air.
5. Follow sprayer directions and precautions as outlined above, especially when applying next to sensitive crops (e.g. canola and legumes)
6. Follow sprayer clean-up directions

Pre-Harvest/Grazing Intervals

1. Do not cut the treated crop for hay or graze treated crop within 7 days after application.
2. Do not harvest the treated crop within 60 days after application.

TANK-MIX COMBINATIONS WITH REXADE A HERBICIDE

Crops Registered

Spring wheat, winter wheat and durum wheat

Application Directions

Tank mixtures of Rexade A Herbicide with 2,4-D Ester at rates of 280 to 420 g ae/ha will provide control of additional broadleaved weeds (see table below). Apply when crops and weeds are actively growing. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds. Follow all precautions, minimum interval to harvest and directions for use on the Rexade A Herbicide and tank-mix partner labels.

Read and observe all label directions, including rates, restrictions, and grazing limitations for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on all product labels.

ADJUVANT IS NOT REQUIRED WHEN REXADE A IS TANK MIXED WITH 2,4-D ESTER FORMULATIONS.

Tank Mix Partner	Tank Mix Partner Rate	Additional Weeds Controlled
2,4-D ester	280* g ae/ha (e.g., 425 mL/ha of 2,4-D ester 700)	volunteer Clearfield canola (1-6 leaf)
2,4-D ester	350* g ae/ha (e.g., 530 ml/ha of 2,4-D ester 700) to 420** g ae/ha (e.g., 636 ml/ha of 2,4-D ester 700)	annual sunflower, bluebur, burdock, cocklebur, kochia***, mustard (except dog and green tansy), plantain, prickly lettuce, ragweeds, Russian thistle, sweet clover, wild radish,

* Apply in the spring from the 2 leaf expanded to just prior to flag emergence stage in spring wheat, durum wheat and winter wheat

** Use higher rate under cool or dry conditions, and under heavy infestations; Apply in the spring from the 3 leaf expanded to just before the flag leaf stage in spring wheat and durum wheat and from the 3 leaf expanded to the 7 leaf, 4 tiller stage in winter wheat

*** Up to 10 cm in height, up to 50 plants/m²

BUFFER ZONES

Spot Treatments using hand-held equipment DO NOT require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:		
		Freshwater Habitat of Depths:		Terrestrial Habitat
		< 1 m	> 1 m	
Field sprayer	Spring wheat, durum wheat, winter wheat	1	1	2

Aerial	Spring wheat, durum wheat, winter wheat,	Fixed wing	5	1	90
		Rotary wing	5	1	75

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The spray drift buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management Rexade A Herbicide is a Group 2 and Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Rexade A Herbicide and other Group 2 and Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Rexade A Herbicide or other Group 2 and Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor treated weed populations after herbicide application for signs of resistance development. (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.corteva.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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051519

Label Code: CN-32520-008-E

Replaces: CN-32520-007-E

Specimen Label Notes:
Add earlier crop staging for 2,4-D ester tank-mix (3 leaf)

SAFETY DATA SHEET

DOW AGROSCIENCES CANADA INC.

Product name: REXADE™ A Herbicide

Issue Date: 12/05/2016

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: REXADE™ A Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
#2400, 215 - 2ND STREET S.W.
CALGARY AB T2P 1M4
CANADA

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Granules

Color Tan

Odor Mild

Hazard Summary

CAUTION!!

May cause eye irritation.
May be harmful if inhaled.
Isolate area.
Keep upwind of spill.
Toxic fumes may be released in fire situations.
Spilled material may cause a slipping hazard.
Highly toxic to fish and/or other aquatic organisms.
Possible cancer hazard. May cause cancer based on animal data.

Potential Health Effects

Eyes: May cause moderate eye irritation.
May cause slight corneal injury.

Skin: Brief contact may cause slight skin irritation with local redness.
Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: Prolonged excessive exposure to dust may cause adverse effects.
Dust may cause irritation to upper respiratory tract (nose and throat).

Ingestion: Very low toxicity if swallowed.
Harmful effects not anticipated from swallowing small amounts.

Chronic Exposure: For the active ingredient(s):
In animals, effects have been reported on the following organs:
Kidney.
Liver.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent
Halauxifen-methyl	943831-98-9	5.21%
Pyroxsulam	422556-08-9	15.0%
Substituted Quinoline Derivative	Trade Secret	Trade secret
Kaolin	1332-58-7	6.4%
Titanium dioxide	13463-67-7	0.1%
Balance	Not available	Trade secret

4. FIRST AID MEASURES**Description of first aid measures**

General advice: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, do not permit dust to accumulate.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Soak thoroughly with water to cool and prevent re-ignition. Cool surroundings with water to localize fire zone. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Processing this product may generate dusts. Dust explosion hazard may result from forceful application of fire extinguishing agents. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing dust or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Good housekeeping and controlling of dusts are necessary for safe handling of product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Pyroxsulam	Dow IHG	TWA	5 mg/m ³
	Dow IHG	TWA	Skin Sensitizer
Kaolin	ACGIH	TWA Respirable fraction	2 mg/m ³
	CA AB OEL	TWA Respirable	2 mg/m ³
	CA BC OEL	TWA Respirable	2 mg/m ³
	CA QC OEL	TWAEV respirable dust	5 mg/m ³
	ACGIH	TWA	10 mg/m ³ , Titanium dioxide
Titanium dioxide	Dow IHG	TWA	2.4 mg/m ³
	CA AB OEL	TWA	10 mg/m ³
	CA BC OEL	TWA	10 mg/m ³
	CA QC OEL	TWAEV total dust	10 mg/m ³

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyvinyl chloride ("PVC" or "vinyl"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Granules
Color	Tan
Odor	Mild
Odor Threshold	No data available
pH	4.44 <i>pH Electrode</i>
Melting point/range	No data available
Freezing point	Not applicable
Boiling point (760 mmHg)	Not applicable
Flash point	closed cup Not applicable
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	No
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	Not applicable
Relative Density (water = 1)	No data available
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	Not applicable
Decomposition temperature	No data available
Dynamic Viscosity	Not applicable
Kinematic Viscosity	No data available
Explosive properties	No

Oxidizing properties	No significant increase (>5C) in temperature.
Bulk density	0.5222 g/ml <i>Loose Volumetric</i> 0.5561 g/ml <i>Tapped Volumetric</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: Avoid contact with: Strong oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Nitrogen oxides. Toxic gases.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:

LD50, Rat, female, > 5,000 mg/kg OECD Test Guideline 423

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, Rat, male and female, > 5,000 mg/kg OECD Test Guideline 402

Acute inhalation toxicity

Prolonged excessive exposure to dust may cause adverse effects. Dust may cause irritation to upper respiratory tract (nose and throat).

As product: The LC50 has not been determined.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight corneal injury.

Sensitization

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):
In animals, effects have been reported on the following organs:
Kidney.
Liver.

Carcinogenicity

For the active ingredient(s): Did not cause cancer in laboratory animals.

For similar active ingredient(s). Did not cause cancer in laboratory animals. A risk assessment has been conducted for this product and has shown, that under normal handling, the minor components will not pose a hazard.

Teratogenicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity

For the active ingredient(s): In animal studies, did not interfere with reproduction.

For similar active ingredient(s). In animal studies, did not interfere with reproduction.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

COMPONENTS INFLUENCING TOXICOLOGY:

Halauxifen-methyl

Acute inhalation toxicity

No adverse effects are anticipated from inhalation. For respiratory irritation and narcotic effects: No relevant data found.

The LC50 has not been determined.

Pyroxsulam

Acute inhalation toxicity

LC50, Rat, 4 Hour, dust/mist, > 5.12 mg/l No deaths occurred at this concentration.

Substituted Quinoline Derivative

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to dust. Based on the available data, respiratory irritation was not observed.

LC50, Rat, male and female, 4 Hour, dust/mist, > 6.11 mg/l No deaths occurred at this concentration.

Kaolin

Acute inhalation toxicity

As product: The LC50 has not been determined.

Titanium dioxide

Acute inhalation toxicity

LC50, Rat, male, 4 Hour, dust/mist, > 6.82 mg/l No deaths occurred at this concentration.

Balance

Acute inhalation toxicity

The LC50 has not been determined.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 26.5 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, > 68.1 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 3 mg/l, OECD Test Guideline 201

ErC50, Lemna gibba (gibbous duckweed), 7 d, 0.020 mg/l, OECD 221.

NOEC, Lemna gibba (gibbous duckweed), 7 d, 0.0049 mg/l, OECD 221.

Toxicity to Above Ground Organisms

oral LD50, Apis mellifera (bees), 48 Hour, > 208.9µg/bee

contact LD50, Apis mellifera (bees), 48 Hour, > 200µg/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia andrei (red worm), 14 d, > 1,000 mg/kg

Persistence and degradability

Halauxifen-methyl

Biodegradability: For similar active ingredient(s). Halauxifen. Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 7.7 %

Exposure time: 28 d

Method: OECD Test Guideline 310 or Equivalent

Pyroxsulam

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

Biodegradation: 20 - 30 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Substituted Quinoline Derivative

Biodegradability: No relevant data found.

Kaolin

Biodegradability: Biodegradation is not applicable.

Titanium dioxide

Biodegradability: Biodegradation is not applicable.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential**Halauxifen-methyl**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 3.76

Bioconcentration factor (BCF): 233 *Lepomis macrochirus* (Bluegill sunfish) 42 d

Pyroxsulam

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -1.01 Measured

Substituted Quinoline Derivative

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 2.12 Estimated.

Titanium dioxide

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Balance

Bioaccumulation: No relevant data found.

Mobility in soil**Halauxifen-methyl**

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient (Koc): 5684

Pyroxsulam

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): <= 42 Estimated.

Substituted Quinoline Derivative

Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient (Koc): 206 Estimated.

Titanium dioxide

No data available.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(PYROXSULAM, Halauxifen-methyl)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	PYROXSULAM, Halauxifen-methyl

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(PYROXSULAM, Halauxifen-methyl)
UN number	UN 3077
Class	9
Packing group	III
Marine pollutant	PYROXSULAM, Halauxifen-methyl
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.(PYROXSULAM, Halauxifen-methyl)
UN number	UN 3077
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act (PCPA) Registration Number: 32520

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	0	0

Revision

Identification Number: 102981885 / A215 / Issue Date: 12/05/2016 / Version: 1.0

DAS Code: GF-3339

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Dow IHG	Dow Industrial Hygiene Guideline
TWA	Time weighted average
TWAEV	Time-weighted average exposure value

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

SAFETY DATA SHEET

DOW AGROSCIENCES CANADA INC.

Product name: REXADE™ B Herbicide

Issue Date: 12/05/2016

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: REXADE™ B Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
#2400, 215 - 2ND STREET S.W.
CALGARY AB T2P 1M4
CANADA

Customer Information Number:

800-667-3852 solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid

Color Yellow

Odor

Characteristic

Hazard Summary

WARNING!!

May cause allergic skin reaction.

May cause eye irritation.

May be harmful if swallowed.

Isolate area.

Toxic fumes may be released in fire situations.

Potential Health Effects

Eyes: May cause slight eye irritation.

May cause slight corneal injury.

Skin: Brief contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.
Has demonstrated the potential for contact allergy in mice.
Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: No adverse effects are anticipated from single exposure to mist.
Based on the available data, respiratory irritation was not observed.

Ingestion: Low toxicity if swallowed.
Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.
Swallowing may result in gastrointestinal irritation.

Chronic Exposure: For the active ingredient(s):
Has been toxic to the fetus in laboratory animal tests.
There is no evidence that these findings are relevant to humans.
For similar active ingredient(s).
2,4-Dichlorophenoxyacetic acid.
In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring.
For the minor component(s):
In animals, effects have been reported on the following organs:
Blood.
Kidney.
Liver.
Spleen.
Has caused birth defects in laboratory animals only at doses toxic to the mother.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
These concentrations exceed relevant human dose levels.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent
2,4-D 2-ethylhexyl ester	1928-43-4	87.2%
Calcium dodecylbenzene sulfonate	26264-06-2	3.0%
Ethylhexanol	104-76-7	1.0%
Balance	Not available	8.8%

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be available in work area.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment. Skin contact may aggravate preexisting dermatitis.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function. Water fog, applied gently may be used as a blanket for fire extinguishment.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Water fog, applied gently may be used as a blanket for fire extinguishment. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Use with adequate ventilation. Wash thoroughly after handling.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
2,4-D 2-ethylhexyl ester	CA ON OEL	TWAEV	10 mg/m ³ , As 2,4-D
	CA BC OEL	TWA	10 mg/m ³
	CA BC OEL	STEL	20 mg/m ³
Ethylhexanol	Dow IHG	TWA	2 ppm
	Dow IHG	TWA	SKIN

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid
Color	Yellow
Odor	Characteristic
Odor Threshold	No test data available
pH	3.91 1% <i>pH Electrode</i> (1% aqueous suspension)
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	closed cup 136 °C <i>Pensky-Martens Closed Cup ASTM D 93</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No data available
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	Not applicable
Relative Density (water = 1)	1.1402 at 20 °C / 4 °C <i>Digital Density Meter (Oscillating Coil)</i>
Water solubility	emulsifiable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	273 °C <i>Literature</i> Ramped Temperature
Decomposition temperature	No test data available
Dynamic Viscosity	28.8 mPa.s at 20 °C

Kinematic Viscosity	30.2 cSt at 20 °C
Explosive properties	No data available
Oxidizing properties	No data available
Liquid Density	1.14 g/cm ³ at 20 °C <i>Digital density meter</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid.

Incompatible materials: Avoid contact with: Acids. Bases. Oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Swallowing may result in gastrointestinal irritation.

As product:

LD50, Rat, female, 1,750 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, Rat, > 5,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Based on the available data, respiratory irritation was not observed.

As product:

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.16 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation

May cause slight eye irritation.
May cause slight corneal injury.

Sensitization

As product:
Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

For the minor component(s):
In animals, effects have been reported on the following organs:
Blood.
Kidney.
Liver.
Spleen.

Carcinogenicity

For the active ingredient(s): Did not cause cancer in laboratory animals.

For the minor component(s): In laboratory animals, evidence of carcinogenic activity was observed. The observed tumors do not appear to be relevant for men.

Teratogenicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animal tests. There is no evidence that these findings are relevant to humans. Did not cause birth defects in laboratory animals.

For the minor component(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Has caused birth defects in laboratory animals only at doses toxic to the mother. These concentrations exceed relevant human dose levels.

Reproductive toxicity

For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

2,4-D 2-ethylhexyl ester

Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, tidewater silverside (*Menidia beryllina*), flow-through test, 96 Hour, > 1.9 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, > 5 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

As the ester active substance.

EbC50, *Skeletonema costatum* (marine diatom), static test, 5 d, Biomass, 0.23 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (Water flea), flow-through test, 21 d, weight, 0.015 mg/l

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50, *Anas platyrhynchos* (Mallard duck), 663mg/kg bodyweight.

dietary LC50, *Anas platyrhynchos* (Mallard duck), 5 d, > 5620mg/kg diet.

oral LD50, *Apis mellifera* (bees), > 100micrograms/bee

contact LD50, *Apis mellifera* (bees), > 100micrograms/bee

Calcium dodecylbenzene sulfonate

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, *Cyprinus carpio* (Carp), 96 Hour, 2.8 - 4.2 mg/l, Method Not Specified.

LC50, *Oryzias latipes* (Orange-red killifish), 48 Hour, 3.0 - 5.3 mg/l, Method Not Specified.

Ethylhexanol

Acute toxicity to fish

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), 96 Hour, 32 - 37 mg/l

Acute toxicity to aquatic invertebrates

LC50, *Daphnia magna* (Water flea), 48 Hour, 35.2 mg/l, OECD Test Guideline 202

EC50, *Daphnia magna* (Water flea), 48 Hour, 39 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Growth rate inhibition, 11.5 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, Bacteria, 16 Hour, 256 - 320 mg/l

Balance

Acute toxicity to fish
No relevant data found.

Persistence and degradability**2,4-D 2-ethylhexyl ester**

Biodegradability: Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%). Biodegradation may occur under aerobic conditions (in the presence of oxygen).

10-day Window: Fail

Biodegradation: 77 %

Exposure time: 29 d

Method: OECD Test Guideline 301B or Equivalent

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	0.84 %
10 d	0.92 %
20 d	1.32 %

Calcium dodecylbenzene sulfonate

Biodegradability: For similar material(s): Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 95 %

Exposure time: 28 d

Method: OECD Test Guideline 301E or Equivalent

Ethylhexanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Not applicable

Biodegradation: > 95 %

Exposure time: 5 d

Method: OECD Test Guideline 302B or Equivalent

10-day Window: Pass

Biodegradation: 68 %

Exposure time: 17 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 2.95 mg/mg

Chemical Oxygen Demand: 2.70 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	26 - 70 %
10 d	75 - 81 %
20 d	86 - 87 %

Photodegradation**Test Type:** Half-life (indirect photolysis)**Sensitizer:** OH radicals**Atmospheric half-life:** 9.7 Hour**Method:** Estimated.**Balance****Biodegradability:** No relevant data found.**Bioaccumulative potential****2,4-D 2-ethylhexyl ester****Bioaccumulation:** For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** 0.83 at 25 °C Measured**Bioconcentration factor (BCF):** 10**Calcium dodecylbenzene sulfonate****Bioaccumulation:** Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).**Partition coefficient: n-octanol/water(log Pow):** 6.78 estimated**Ethylhexanol****Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).**Partition coefficient: n-octanol/water(log Pow):** 3.1 Measured**Balance****Bioaccumulation:** No relevant data found.**Mobility in soil****2,4-D 2-ethylhexyl ester**

Calculation of meaningful sorption data was not possible due to very rapid degradation in the soil.

For the degradation product:

2,4-Dichlorophenoxyacetic acid.

Expected to be relatively immobile in soil (Koc > 5000).

Calcium dodecylbenzene sulfonate

No relevant data found.

Ethylhexanol

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 800 Estimated.**Balance**

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or

otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(2,4-D Ester)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	2,4-D Ester

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(2,4-D Ester)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	2,4-D Ester
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(2,4-D Ester)
UN number	UN 3082
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act (PCPA) Registration Number: 32294

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	1	0

Revision

Identification Number: 101209418 / A215 / Issue Date: 12/05/2016 / Version: 2.0

DAS Code: GF-1406

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

CA BC OEL	Canada. British Columbia OEL
CA ON OEL	Canada. Ontario OELs
Dow IHG	Dow Industrial Hygiene Guideline
SKIN	Absorbed via skin
STEL	short-term exposure limit
TWA	Time weighted average
TWAEV	time-weighted average exposure value

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



Rexade™ B

Herbicide

GROUP	4	HERBICIDE
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For the selective control of broadleaved weeds in wheat

COMMERCIAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

GUARANTEE: 2,4-D, present as 2-ethylhexyl ester at 660 g a.e./L
Emulsifiable concentrate

REGISTRATION NO. 32294 PEST CONTROL PRODUCTS ACT

CAUTION  **POISON**

**WARNING – SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: 8.0 L - bulk

Dow AgroSciences Canada Inc.
2400, 215 – 2nd Street SW
Calgary, Alberta
T2P 1M4
1-800-667-3852

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PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

Causes skin irritation. DO NOT get on skin. Harmful if swallowed. Potential skin sensitizer.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

PROTECTIVE CLOTHING AND EQUIPMENT

Application with Ground, Aerial Equipment or Application Using Handheld Equipment

- During mixing, loading, applying, clean-up and repair, wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes. Rinse gloves before removal.
- Gloves are not required during application when applicator is in an enclosed tractor or an enclosed airplane cockpit.
- No human flaggers are permitted for aerial application.

Transfer System

- For containers larger than 20 L, use a transfer system that avoids open pouring when transferring the liquid concentrate from such containers into the spray tank.
- When handling more than 400 L of Rexade B Herbicide per day workers must also use a closed system.

OPERATOR USE PRECAUTIONS

- Wear freshly laundered clothing and clean protective equipment daily.
- Rinse gloves before removal.
- Wash hands before eating, drinking, using tobacco or using the toilet.
- If herbicide penetrates clothing remove immediately; then wash thoroughly and put on clean clothing. Throw away clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.
- After using this product, remove clothing and launder separately, and promptly and thoroughly wash hands and exposed skin with soap and water. Follow manufacturer's instructions for cleaning personal protective clothing and equipment. If no such instructions for washables are provided, use detergent and hot water. Keep and wash personal protective equipment separate from household laundry.
- After work, remove all clothing and shower using soap and water.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgement of the physician in response to reactions of the patient. This product may cause mild irritation to the eyes. Overexposure to 2,4-D may cause coughing, burning, dizziness or temporary loss of muscle coordination. Other possible effects of overexposure include fatigue, muscle weakness or nausea. Treat symptomatically.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

Toxic to small wild mammals, birds, aquatic organisms and nontarget terrestrial plants. This product will harm other broadleaved plants in the vicinity of the treatment area. The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application of this product when heavy rain is forecast. Contaminations of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Observe buffer zones specified under BUFFER ZONES

STORAGE

To prevent contamination, store this product away from food or feed. This product must be stored away from fertilizers, seeds, insecticides, fungicides or other herbicides intended for use on 2,4-D sensitive crops.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTE: Local conditions may affect the use of herbicides. Provincial agricultural authorities issue recommendations to fit local conditions. Be sure that use of this product conforms to all applicable regulations.

If this product is exposed to temperatures below -20°C, it should be warmed to at least 5°C and mixed thoroughly before using.

DIRECTIONS FOR USE – GENERAL PRECAUTIONS

This pesticide is not registered for the control of pests in aquatic systems. **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water suppliers or aquatic habitats by cleaning of equipment or disposal of wastes.

Sensitive Plants

Vegetables, flowers, grapes, fruit trees and other desirable plants are sensitive to 2,4-D even in minute quantities. Care should be taken to avoid spraying these types of plants or allowing spray mist to drift onto these plants during both their growing and dormant periods. At higher temperatures, vaporization may cause injury to susceptible plants growing nearby. This product may cause damage to lawns or pastures if applied before the grass is well established. In addition, most legumes may be damaged or killed.

If applying this product using a handheld sprayer, do not directly spray or allow the spray to drift onto ornamentals or gardens.

Do not spray roots of trees and ornamentals.

When tank mixing, refer to the labels of the tank mix partner and follow all precautions and directions for use.

Field sprayer application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Observe buffer zones specified under BUFFER ZONES

Aerial application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotor-span.

Do not angle nozzles forward into the air-stream and do not increase the spray volume by increasing nozzle pressure. A spray thickening agent or drift retardant may be used with this product to air in reducing spray drift. Fixed and rotary-winged aerial applications to field crops should be made in a minimum of 30 L/ha total spray mixture.

Do not use human flaggers.

Avoid Spray Drift: Apply only when there is little or no hazard from spray drift. Small quantities of the spray, which may not be visible, may seriously injure susceptible crops and damage sensitive non-target habitat. A method must be used to detect air movement, lapse conditions or temperature inversions (stable air) such as the use of balloons or a continuous smoke column at or near the spray site or a smoke generator on the spray equipment. If the smoke develops into layers or indicates a potential for hazardous spray drift, do not spray. Apply only be fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Sensitive aquatic habitats include: (1) All running (lotic) and standing (lentic) water bodies, including impoundments, beaver ponds and bog ponds, that appear on the map of GPS system; (2) Running (lotic) and standing (lentic) water bodies that do not appear on the map of GPS system but are visible from the air.

Observe buffer zones specified under BUFFER ZONES

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls over a long sleeved-shirt, long pants, socks plus shoes, and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

DIRECTIONS FOR USE - CROP USE

Ground Application

Apply 50 to 200 L of spray solution per hectare depending on the type of application equipment used. Use sufficient water for even distribution. Apply when the weeds are actively growing. Follow DIRECTIONS FOR USE – GENERAL PRECAUTIONS.

Aerial Application (including fixed and rotary wing aircraft)

Apply a minimum of 30 L of spray solution per hectare depending on the type of application system being used. Use boom pressures of 235 kPa or less. Avoid placing nozzles where spray will enter wing tip vortices. Follow DIRECTIONS FOR USE – GENERAL PRECAUTIONS.

To Prepare a Spray

Add half the required amount of water to the spray tank, then the Rexade B Herbicide with agitation, and finally the balance of the water with continued agitation.

WARNING: If preparing straight oil mixtures, do not let water get into the product or the finished mixture.

NOTE: This product in water forms an emulsion, not a solution, which tends to separate on standing. Agitate to prevent such separation and ensure uniformity of spray mixture.

Spot Treatment

For knapsack application of Rexade B Herbicide for spot treatment of weeds such as thistles, mix 0.17 L of product in 10 L of water. Wet all foliage thoroughly.

Selective Weed Control in Small Grains

Weeds differ in their susceptibility to Rexade B Herbicide and not all types can be controlled satisfactorily in crops. The amount of Rexade B Herbicide to use will depend upon the susceptibility and whether the crops will tolerate this amount. See Table 1.

Wheat

Spray from the 3-leaf expanded stage (15 cm tall) to just before the flag-leaf (shot-blade) stage. To avoid crop injury, do not treat during boot and flowering stages. Winter wheat should be treated in early spring, as soon as weeds appear and before the crop reaches the shot-blade stage.

Table 1: Suggested Amounts of Rexade B Herbicide for Weed Control in Cereals (not underseeded to legumes)

Mixed Weedy Growth	Stage of Weed Kind of Weather	Amount L/ha	Hectares Treated/20L
Susceptible weeds such as: mustard (except dog and green tansy), flixweed, bluebur, burdock, cocklebur, field horsetail*, stinkweed, goatsbeard, prickly lettuce, hoary cress*, kochia, lamb's-quarters, plantain, ragweeds, Russian knapweed, Russian thistle, shepherd's purse, annual sunflower, sweet clover, vetch, wild radish	Seedling (2-4 leaves) Growing rapidly	0.51 L	33
	Weeds in bud Dry, cool weather Heavy infestation	0.77 L	22
Harder to kill weeds such as: biennial wormwood, docks, dandelion, dog mustard, field peppergrass, hairy galinsoga, gumweed, hedge bindweed, lady's thumb, oak leaf goosefoot, redroot pigweed, Russian thistle, smartweed, annual sow-thistle, tansy, Tartary buckwheat, tumbleweed, blue lettuce*, Canada thistle*, field bindweed*, leafy spurge*, perennial sow-thistle*, wild buckwheat*	Seedling (2-4 leaves) Growing rapidly	0.85 L [†]	20
	Weeds in bud Dry or cool weather Heavy infestation	1.28 L [†]	13

*Top growth control only.

†Better control will result from 2 treatments applied one week apart at 0.51 L/ha Rexade B Herbicide.

†The higher rates may cause deformities and delayed maturity which will be offset by a higher relative yield from a less weedy crop.

Pre-Harvest Interval

- Do not permit lactating dairy animals to graze fields within 7 days after application.
- Do not harvest forage or cut hay within 30 days after application.
- Withdraw meat animals from treated fields at least 3 days before slaughter.

BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g., wind direction, low wind speed) and spray equipment (e.g., coarse droplet sizes, minimizing height about canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Table 2: Buffer zones required to protect sensitive terrestrial and aquatic habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				Terrestrial habitat
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer*	Field crops (wheat)		1	0	1	0	1
Aerial	Field crops (wheat)	Fixed wing	1	0	1	0	45
		Rotary Wing	1	0	1	0	40

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Rexade B Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Rexade B Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Rexade B Herbicide or other Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.

- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

All other products listed are registered trademarks of their respective companies.

051916

Label Code: CN-32520-001-E

Specimen label notes
Initial Release

2017-3097
2018-02-13

GROUP

9

HERBICIDE

Roundup Transorb® HC Liquid Herbicide

Solution

AGRICULTURAL and INDUSTRIAL

WARNING



POISON

EYE AND SKIN IRRITANT

REGISTRATION NO. 28198 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: Glyphosate, 540 grams acid equivalent per litre, present as potassium salt.

Water Soluble Herbicide for non-selective weed control

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING.

NET CONTENTS: 10 LITRES to Bulk

**MONSANTO CANADA INC.
900 – One Research Road
Winnipeg, Manitoba R3T 6E3**

1-800-667-4944

2017

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED.

HARMFUL IF INHALED.

CAUSES EYE AND SKIN IRRITATION.

Avoid contact with eyes, skin or clothing.

Avoid inhaling spray mist.

Wear a long-sleeved shirt and long pants during mixing, loading, application, clean-up and repair. In addition, wear goggles or a face shield and chemical-resistant gloves during mixing and loading, clean-up and repair.

The restricted entry interval is 12 hours after application for all agricultural uses.

FIRST AID

If swallowed: call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically. This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia.

ENVIRONMENTAL HAZARDS

- **TOXIC** to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under **DIRECTIONS FOR USE**.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

In case of an emergency involving this product, call Monsanto collect, day or night:

Accident/Spills/Medical Emergency (314) 694-4000
 Or1-800-332-3111

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

For additional information on this or other Monsanto agricultural products, call the Monsanto Technical Support Line at: 1-800-667-4944.

STORAGE

Avoid contamination of seed, feed, and foodstuffs.
 Soak up small amounts of spill with absorbent clays.

DISPOSAL

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer and the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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GROUP

9

HERBICIDE

Roundup Transorb[®] HC Liquid Herbicide

SOLUTION

AGRICULTURAL and INDUSTRIAL

WARNING



POISON

EYE AND SKIN IRRITANT

REGISTRATION NO. 28198 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: Glyphosate, 540 grams acid equivalent per litre, present as potassium salt.

Water Soluble Herbicide for non-selective weed control

READ THE LABEL AND BROCHURE BEFORE USING.

**MONSANTO CANADA INC.
900 – One Research Road
Winnipeg, Manitoba R3T 6E3
1-800-667-4944**

2017

(FRANÇAIS AU VERSO)

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Roundup Transorb[®] HC Liquid Herbicide

1.0 PRODUCT DESCRIPTION

Water soluble herbicide for non-selective weed control in CROPLAND SYSTEMS AND IN NON-CROPLAND AREAS.

CROPLAND USES INCLUDE:

In cropping systems before planting of all crops; in minimum tillage systems; postemergent in TruFlex[™] Roundup Ready[®] Canola, Roundup Ready canola, soybean, corn and sugar beets varieties; preharvest applications in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), peas, lentils, dry beans, soybeans, chickpeas, dried lupins, dried fava beans and forages; in pasture renovation; in forage, legume and grass establishments; in tree crops including apple, pear, cherry, plum, peach, nectarine, apricot, filbert, hazelnut, walnut, chestnut, Japanese heartnut; in grapes, cranberries, blueberries and strawberry; in sugar beets; in asparagus; in North American ginseng; in tree plantings; and grasses for seed production.

NON-CROPLAND USES INCLUDE:

Industrial; recreational, rights-of-way, and public areas; turf grass renovation.

Not for relabelling or repackaging.

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2.0 EMERGENCY NUMBERS

In case of an emergency involving this product, call Monsanto collect, day or night:

Accident/Spills/Medical Emergency (314) 694-4000
Or1-800-332-3111

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

2.1 INFORMATION

For additional information on this or other Monsanto agricultural products, call the Monsanto Technical Support Line at: 1-800-667-4944.

3.0 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED.

HARMFUL IF INHALED.

CAUSES EYE AND SKIN IRRITATION.

Avoid contact with eyes, skin or clothing.

Avoid inhaling spray mist.

Wear a long-sleeved shirt and long pants during mixing, loading, application, clean-up and repair. In addition, wear goggles or a face shield and chemical-resistant gloves during mixing and loading, clean-up and repair.

The restricted entry interval is 12 hours after application for all agricultural uses.

3.1 FIRST AID

If swallowed: call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

3.2 TOXICOLOGICAL INFORMATION

Treat symptomatically. This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia.

3.3 ENVIRONMENTAL HAZARDS

- **TOXIC** to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

3.4 PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

3.5 STORAGE

Avoid contamination of seed, feed, and foodstuffs.
Soak up small amounts of spill with absorbent clays.

3.6 DISPOSAL AND DECONTAMINATION

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer and the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

DIRECTIONS FOR USE

4.0 GENERAL INFORMATION

Do not apply this product using aerial spray equipment except under conditions as specified within this booklet.

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

Observe buffer zones specified in section 5.3.

Roundup Transorb HC Liquid Herbicide, a water soluble liquid, mixes readily with water for application as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

This herbicide moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Delay application until vegetation has emerged to the stages described for control of such vegetation under the “**Annual and Perennial Weed Control**” (section 7.0 and 8.0) to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per hectare within the recommended range when weed growth is heavy or dense, or weeds are growing in an undisturbed (non-cultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This product does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Rainfall occurring within 60 minutes of treatment may result in reduced weed control. Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of run-off.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, Roundup Transorb HC Liquid Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to Roundup Transorb HC Liquid Herbicide and other Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Roundup Transorb HC Liquid Herbicide or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Monsanto Canada at 1-800-667-4944 or at www.Monsanto.ca

5.0 MIXING AND APPLICATION

5.1 PRECAUTIONS

ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

DO NOT USE IN GREENHOUSES. REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

Clean sprayers and parts immediately after using this product by thoroughly flushing with water. Do not contaminate water sources by disposal of wastes or cleaning of equipment.

DO NOT use human flaggers.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature, application equipment and sprayer settings.

NOTE: Use of this product in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

5.2 MIXING AND APPLICATION EQUIPMENT

MIXING WITH WATER

For ground or industrial type sprayers, fill the spray tank with one-half the required amount of water. Add the proper amount of herbicide, see “**Weed Control**” (sections 7.1 and 8.1) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent excessive foaming. Removing hose from tank immediately will avoid back siphoning into water source. Use of mechanical agitators may cause excessive foaming. Bypass lines should terminate at the bottom of the tank.

For use in knapsack sprayers, it is suggested that the proper amount of this herbicide be mixed with water in a larger container. Fill sprayer with the mixed solution.

TANK MIXING PROCEDURE

The following steps should be followed when adding tank mix partners, using a herbicide loading system or adding product directly into the tank:

1. Fill spray tank 3/4 full of water.
2. Start agitation and run for entire mixing and spraying operation.
3. Add required amount of the tank mix partner.
4. Flush herbicide loading tank and herbicide containers with water.
5. If using a herbicide loading system - ensure that the loading tank and lines to the pump are empty and flushed out with water before adding tank mix partner.
6. Add required amount of Roundup Transorb HC Liquid Herbicide.
7. Flush herbicide loading tank and herbicide containers with water.
8. If using a herbicide loading system - ensure that the loading tank and lines to the pump are flushed with water and empty before starting spray operation.

Always start and end the mixing and spraying operation with a clean system.

APPLICATION EQUIPMENT

BOOM EQUIPMENT

For control of perennial weeds and woody brush and trees listed on this booklet using conventional boom equipment – apply this product in 50 to 300 litres of clean water per hectare as a broadcast spray using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

For control of annual weeds listed on this booklet using conventional boom equipment – Apply this product in 50 to 100 litres of clean water per hectare as a broadcast spray, except as otherwise stated on this label using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

HAND HELD AND HIGH VOLUME EQUIPMENT (use coarse sprays only)

For control of weeds and woody brush and trees listed in the “Weed Control” section (6.0) of this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements – Unless otherwise specified, make a 0.67 percent solution of this product in water (0.67 litres of this product in 100 litres of water) and apply to foliage of vegetation to be controlled. For best results, use a 1.34 percent solution (1.34 litres of this product in 100 litres of water) on harder to control perennials such as field bindweed, hemp dogbane, milkweed and Canada thistle.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of run-off. Handgun applications should be properly directed to avoid spraying desirable plants.

SELECTIVE EQUIPMENT

Selective equipment such as **WIPER** and **ROLLER** applicators can be used for weed control in soy and dry beans, orchards, vineyards, cranberries, strawberries and non-crop areas. For information regarding use of this product with selective equipment, refer to “**Selective Equipment**” (section 9.12).

AERIAL EQUIPMENT

Aerial application can only be used for weed control in preharvest situations. Refer to sections 5.3 and 9.9.2 for application information.

Directions for use

Apply only by fixed-wing or rotary aircraft which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Ensure that the maximum boom width does not exceed 65% of

the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate(s) recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of spotter planes is recommended.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the Monsanto Technical Support Line at 1-800-667-4944 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 30-100 litres per hectare.

5.3 BUFFER ZONES

- i) Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

ii) **Buffer zones:**

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies).

Agricultural and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
		Aquatic habitats	Terrestrial habitats
Agricultural crop system and ground boom application method			
Pre-seeding applications for rye, cranberry, filberts, hazelnut and all other crops. Established pasture and summer fallow. Ginseng new garden.	1	1	1
Ginseng - existing established garden, Canola – Roundup Ready hybrid for seed production	2	1	1
Filberts or hazelnut, sugar beets (glyphosate tolerant varieties)	4	1	1
Corn (glyphosate non-tolerant varieties including grain, silage and ornamental types), sugar beet (glyphosate non-tolerant varieties), strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)	2	1	2

Agricultural and non-cropland systems		Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
			Aquatic habitats	Terrestrial habitats
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), corn-sweet (glyphosate tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, chickpea, lupin (dried), fava bean (dried), asparagus, corn (glyphosate tolerant varieties), forage grasses and legume including seed production		3	1	2
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)		4	1	2
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes		3	1	3
Agricultural crop system and airblast application method (including mist blower)				
Pasture		1	20	30
Turfgrass (Prior to establishment or renovation)		2	25	35
Non-cropland system and ground boom application method				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	3*
Non-cropland system and airblast application method (including mist blower)				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	30*
Agricultural crop system and aerial application method	Wing type			
Rye, corn (glyphosate non-tolerant varieties), corn-sweet (glyphosate tolerant varieties), chickpea, lupin (dried), fava bean (dried), sugar beet (glyphosate non-tolerant varieties), all other crops for pre-seeding treatments only	Fixed and rotary wing	1	15	20

Agricultural and non-cropland systems		Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
			Aquatic habitats	Terrestrial habitats
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
Sugar beets (glyphosate tolerant varieties)	Fixed wing	2	20	30
	Rotary wing	2	15	30
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30
Forage grasses and legume including seed production	Fixed and rotary wing	1	20	40
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40
Summer fallow	Fixed wing	1	20	45
	Rotary wing	1	20	40
Corn (glyphosate tolerant varieties)	Fixed wing	2	20	50
	Rotary wing	2	20	45
Pasture	Fixed wing	1	30	70
	Rotary wing	1	30	55
Non-cropland system and aerial application method				

Agricultural and non-cropland systems		Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
			Aquatic habitats	Terrestrial habitats
Non-crop land and industrial uses: rights-of way areas	Fixed wing	3	100	NR
	Rotary wing	3	60	NR

* Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

NR = Not Required

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

6.0 WEEDS CONTROLLED

This product controls many annual and perennial grasses, broadleaf weeds, and woody brush and trees when applied as recommended and under conditions described. For information on how to control specific weeds including herbicide rate, refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (sections 7.1 and 8.1). The following is a partial list of weeds controlled:

6.1 ANNUAL WEEDS

ANNUAL GRASSES

Barnyard Grass

Echinochloa crusgalli

Blue Grass (annual)

Poa annua

Crab Grass (large)

Digitaria sanguinalis

Crab Grass (smooth)

Digitaria ischaemum

Downy Brome Grass

Bromus tectorum

Fall Panicum

Panicum dichotomiflorum

Giant Foxtail

Setaria faberii

Green Foxtail

Setaria viridis

Persian Darnel

Lolium persicum

Volunteer Barley

Hordeum spp.

Volunteer Corn*Zea mays***Volunteer Wheat***Triticum spp.***Wild Oats***Avena fatua***Wild Proso Millet***Panicum miliaceum***Yellow Foxtail***Setaria glauca***ANNUAL BROADLEAF WEEDS****Chickweed***Stellaria media***Cleavers***Galium aparine***Cocklebur***Xanthium strumarium***Corn Spurry***Spergula arvensis***Cow Cockle***Saponaria vaccaria***Eastern Black Nightshade***Solanum ptycanthum***Fleabane (Canada)***Erigeron canadensis***Flixweed***Descurainia sophia***Green Smartweed***Polygonum scabrum***Hempnettle***Galeopsis tetrahit***Kochia***Kochia scoparia***Lady's-Thumb***Polygonum persicaria***Lamb's-quarters (common)***Chenopodium album***Narrow-leaved Hawk's Beard***Crepis tectorum***Narrow-leaved Vetch***Vicia angustifolia***Night-flowering Catchfly***Silene noctiflora***OTHER****Dodder***Cuscuta spp.***Pennsylvania Smartweed***Polygonum pennsylvanicum***Prickly Lettuce***Lactuca scariola***Ragweed (common)***Ambrosia artemisiifolia***Redroot Pigweed***Amaranthus retroflexus***Round-Leaved Mallow***Malva pusilla***Russian Thistle***Salsola pestifer***Shepherd's Purse***Capsella bursa-pastoris***Smooth Pigweed***Amaranthus hybridus***Sowthistle (annual)***Sonchus oleraceus***Stinkweed***Thlaspi arvense***Storksbill***Erodium cicutarium***Velvetleaf***Abutilon theophrasti***Volunteer Canola (rapeseed)***Brassica spp.***Volunteer Flax***Linum spp.***Wild Buckwheat***Polygonum convolvulus***Wild Mustard***Sinapis arvensis*

Wild Tomato

Solanum triflorum

6.2 PERENNIAL WEEDS

PERENNIAL GRASSES/SEDGES

Blue Grass (Canada)

Poa compressa

Blue Grass (Kentucky)

Poa pratensis

Brome Grass (smooth)

Bromus inermis

Cattail (common)

Typha latifolia

Cottongrass

Eriophorum chamissonis

Foxtail Barley

Hordeum jubatum

Quackgrass

Elytrigia repens

Wire-Stemmed Muhly

Muhlenbergia frondosa

Yellow Nutsedge

Cyperus esculentus

PERENNIAL BROADLEAVED WEEDS

Alfalfa

Medicago spp.

Curled Dock

Rumex crispus

Dandelion

Taraxacum officinale

Field Bindweed

Convolvulus arvensis

Hemp Dogbane

Apocynum cannabinum

Hoary Cress

Cardaria draba

Knotweed (Japanese)

Polygonum cuspidatum

Milkweed (common)

Asclepias syriaca

Poison Ivy

Rhus radicans

Purple Loosestrife

Lythrum salicaria

Sow Thistle (perennial)

Sonchus arvensis

Thistle (Canada)

Cirsium arvense

Toad Flax

Linaria vulgaris

Wormwood (Absinth)

Artemisia absinthium

6.3 WOODY BRUSH AND TREES

Alder

Alnus spp.

Birch

Betula spp.

Broadleaved meadowsweet

Spiraea latifolia

Rhododendron (Canadian)

Rhododendron canadense

Cedar

Thuja spp.

Cherry

Prunus spp.

Douglas Fir

Pseudotsuga spp.

Hemlock

Tsuga spp.

Maple

Acer spp.

Mountain-fly honeysuckle

Lonicera villosa

Pine

Pinus spp.

Poplar

Populus spp.

Raspberry/Salmonberry

Rubus spp.

Sheep laurel

Kalmia angustifolia

Snowberry (Western)

Symphoricarpos occidentalis

Sweet fern

Comptonia peregrina

Willow

Salix spp.

Withrod

Viburnum cassinoides

CROPLAND USES

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR.

7.0 ANNUAL WEED CONTROL

The following tables provide rates and specific application instructions for control of the annual weeds listed.

7.1 ANNUAL WEED CONTROL WITH ROUNDUP TRANSORB HC LIQUID HERBICIDE

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.5	Weeds up to 8 cm in height	Wild oats, green foxtail, volunteer barley, volunteer wheat Non-Roundup Ready volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed	<ul style="list-style-type: none"> • For wild oats apply at 1-3 leaf stage. • Add 350 mL of a surfactant registered for use such as Agral® 90, Ag Surf®, or Companion™ • For heavy wild oat infestations use 0.67 L/ha rate.
0.67	Weeds 8 cm to 15 cm in height	All annual grasses listed above. All annual broadleaved weeds listed above plus flixweed* and kochia*	<ul style="list-style-type: none"> • Add 350 mL of surfactant registered for use as listed above. * Suppression only. Refer to higher rates of this table or tank mix table (section 7.2) for control options.
0.83 – 1.27	Weeds up to 15 cm in height	All annual grasses listed above plus downy brome, giant foxtail, and Persian darnel. All annual broadleaved weeds listed above plus cleavers, lamb's-quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild	<ul style="list-style-type: none"> • No surfactant required. • For tank mix weed control options see section 7.2. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3-4 leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
		buckwheat**, narrow-leaved hawk's beard***	
1.5	Weeds up to 15 cm in height	All annual grasses listed above plus crab grass and annual blue grass All annual broadleaved weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch	• For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).
2.33	Weeds over 15 cm in height	All annual grasses and broadleaved weeds listed above	• For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).

Agral is a registered trademark of Syngenta group company.

Ag-Surf is a registered trademark of Interprovincial Cooperative Ltd.

Companion is a trademark of Dow AgroSciences LLC.

NOTE: For spot treatment, 0.5 – 2.33 litres per hectare is approximately equivalent to 5 – 23 mL/100m², respectively.

7.2 ANNUAL WEED CONTROL WITH ROUNDUP TRANSORB HC LIQUID HERBICIDE TANK MIXTURES

FOR SUMMERFALLOW & MINIMUM TILLAGE SYSTEMS

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED◆	COMMENTS (Apply in 50-100 L/ha water)
Roundup Transorb HC Liquid Herbicide	0.5 – 0.67	Volunteer cereals, wild oats, green foxtail	This tank mix is registered for summerfallow use only . Weeds should be less than 15 cm tall and actively growing for best results.
+ Banvel® II	+ 0.29	Non-Roundup Ready volunteer canola (rapeseed), wild mustard, flixweed*, lamb's-quarters, lady's-thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	Use higher rate if weeds are beyond 8 cm in height. * Roundup Transorb HC Liquid Herbicide applied at 0.67 L/ha rate only. ** Suppression only. See other tank mixtures for control options.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
			Add 350 mL/ha of surfactant – see list in section 7.3.
<p>Roundup Transorb HC Liquid Herbicide</p> <p>+</p> <p>Banvel® II</p>	<p>0.61 – 1.27</p> <p>+</p> <p>0.31</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, Persian darnel</p> <p>Non-Roundup Ready volunteer canola (rapeseed), wild mustard, flixweed, lamb's-quarters, lady's-thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed, wild buckwheat*, smartweed</p>	<p>Use this tank mix prior to seeding in wheat, barley, rye, oats, field corn only (do not apply to sweet corn).</p> <p>Certain broadleaved crops such as lentils, peas, canola and flax can be injured by a pre-seeding application and so should not be planted to a field receiving this treatment.</p> <p>Annual grasses - apply any time between emergence and heading.</p> <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>The higher rate should be applied when weeds are under poor growing conditions such as drought.</p> <p>*1- to 4- leaf stage.</p>
<p>Roundup Transorb HC Liquid Herbicide</p> <p>+</p> <p>Pardner®</p>	<p>0.5 – 0.67</p> <p>+</p> <p>1.25</p>	<p>Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed, wild buckwheat*</p> <p>Redroot pigweed**, kochia**, wild oats**</p>	<p>This tank mix is registered only for use in summerfallow, and prior to wheat, oats and barley in minimum tillage systems.</p> <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* Use Roundup Transorb HC Liquid Herbicide at 0.67 L/ha rate only for wild buckwheat control.</p> <p>** 0.67 L/ha rate, suppression</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
			<p>only. See other tank mixtures for control options.</p> <p>Add 350 mL/ha of surfactant – see list in section 7.3.</p>
<p>Roundup Transorb HC Liquid Herbicide</p> <p>+</p> <p>2,4-D^A</p>	<p>0.83 – 1.27</p> <p>+</p> <p>0.6 – 0.9⁴ or 1.2 – 1.5⁵</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel</p> <p>Volunteer canola, (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia, lamb's-quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***</p> <p>Volunteer Roundup Ready canola (1-4 leaf stage)⁴, bluebur⁴, burdock⁴, cocklebur⁴, common plantain⁴, daisy fleabane⁴, false flax⁴, false ragweed⁴, goat's beard⁴, mustards⁴ (except dog and tansy), prickly lettuce⁴, ragweeds⁴, Russian pigweed⁴, shepherd's purse⁴, stinging nettle⁴, sweet clover⁴, thyme-leaved spurge⁴, wild radish⁴, wild sunflower⁴</p> <p>Volunteer Roundup Ready canola (4-6 leaf stage)⁵, annual</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>No surfactant required.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p>⁴ 2,4-D at 0.6 – 0.9 L/ha (280 – 420 g ai/ha).</p> <p>⁵ 2,4-D at 1.2 – 1.5 L/ha (560 – 700 g ai/ha), Use a minimum of 80 L/ha water when using 2,4-D amine formulations at these rates.</p> <p>Use this tank mix prior to seeding or after seeding but before crop emergence in wheat, winter wheat, barley and rye.</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
		sowthistle ⁵ , common chickweed ⁵ , common purslane ⁵ , dog and tansy mustard ⁵ , oak-leaved goosefoot ⁵ , common groundsel ⁵ , hairy galinsoga ⁵ , hawkweed ⁵ , heal-all ⁵ , knotweed ⁵ , peppergrass ⁵ , pineapple weed ⁵ , prostrate pigweed ⁵ , purslane ⁵ , sheep sorrel ⁵ , smartweed ⁵ , tumble pigweed ⁵ , velvetleaf ⁵ , volunteer canola (rapeseed) ⁵	
Roundup Transorb HC Liquid Herbicide + 2,4-DB	0.5 – 0.67 + 1.2	Volunteer cereals, wild oats*, green foxtail* Volunteer canola (rapeseed), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia Lamb's-quarters**, Russian thistle**	This tank mix is registered for summerfallow use only. Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * Use Roundup Transorb HC Liquid Herbicide at 0.67 L/ha rate only for wild oat and green foxtail control. ** Suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant – see list in section 7.3.
Roundup Transorb HC Liquid Herbicide + MCPA ^C 500 g/L formulation; if	0.83 – 1.27 + 0.5 –	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. No surfactant required. * DO NOT use these rates on

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
another formulation is used, adjust rate accordingly.	0.7 ¹ OR 0.5 – 1.0 ²	thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard*** Volunteer Roundup Ready canola (1-4 leaf stage) ^{1,2} , bluebur ³ , burdock ³ (before 4 leaf stage), false flax ³ , flixweed ³ , lamb's quarters ³ , mustards ³ (except dog and tansy), prickly lettuce ³ , ragweeds ³ , redroot pigweed ³ , Russian pigweed ³ , shepherd's purse ³ , stinkweed (field pennycress) ³ , vetch ³ , wild radish ³ , wild sunflower ³	plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate. ¹ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to peas. ² MCPA at 0.5 – 1.0 L/ha (250 – 500 g ai/ha) prior to wheat, barley, oats, corn (field and sweet) ^C , rye and flax. ³ MCPA at 0.7 – 1.0 L/ha (350 – 500 g ai/ha) only. Use this tank mix prior to seeding in wheat, barley, rye, oats, corn (field and sweet) ^C , flax and field peas ^C .
Roundup Transorb HC Liquid Herbicide + Buctril® M Herbicide	0.83 – 1.27 + 0.5 – 1.0 ¹	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel. Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. No surfactant required. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
		<p>Volunteer Roundup Ready Canola (1-4 leaf stage)^{1,2}</p> <p>Seedlings up to the 4-leaf stage²: green smartweed, pale smartweed, lady's thumb, cow cockle, redroot pigweed, flixweed, bluebur, shepherd's purse, kochia³, Russian thistle³, scentless chamomile⁴, volunteer sunflower, night flowering catchfly, cocklebur, velvetleaf⁵, ball mustard, American nightshade</p> <p>Seedlings up to the 6-leaf stage²: wild tomato</p> <p>Seedlings up to the 8-leaf stage²: wild buckwheat, tartary buckwheat, common buckwheat, stinkweed, wild mustard, wormseed mustard, lamb's quarters, common ragweed, common groundsel</p> <p>Perennials (top growth)²: Canada thistle, perennial sowthistle</p>	<p>¹ Buctril M at 0.5 – 1.0 L/ha (280 – 560 g ai/ha) for all crops listed.</p> <p>² Buctril M at 1.0 L/ha (560 g ai/ha only).</p> <p>³ Spray before plants are 5 cm high.</p> <p>⁴ Spring annuals only.</p> <p>⁵ Spray before plants are 8 cm high.</p> <p>Use this tank mix prior to seeding in wheat, barley, rye, oats, corn, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow bromegrass, seedling streambank wheatgrass and reed canary grass.</p>
Roundup Transorb HC Liquid Herbicide	0.83 – 1.27	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel.</p> <p>Volunteer canola</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p>

+

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
MCPA amine (500 g/L formulation; if another formulation is used, adjust rate accordingly).	+ 0.5 – 0.7	(rapeseed)(non Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard*** Volunteer Roundup Ready canola (1-4 leaf stage) ³ , bluebur ⁴ , burdock ⁴ (before 4 leaf stage), false flax ⁴ , flixweed ⁴ , lamb's quarters ⁴ , mustards ⁴ (except dog and tansy), prickly lettuce ⁴ , ragweeds ⁴ , redroot pigweed ⁴ , Russian pigweed ⁴ , shepherd's purse ⁴ , stinkweed ⁴ (field pennycress), vetch ⁴ , wild radish ⁴ , wild sunflower ⁴	No surfactant required. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate. ³ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to lentils and chickpeas. ⁴ MCPA amine at 0.7 L/ha (350 g ai/ha) only. Use this tank mix prior to seeding in lentil and chickpea. Under drought conditions, deep seeding and/or brief rain showers after seeding may cause injury to emerging seedlings in sprayer overlaps.
Roundup Transorb HC Liquid Herbicide + Express Toss-N-Go Herbicide Or Express Toss-N-Go Dry Flowable 75%	0.83 – 1.27 + 10 g/ha (7.5 g ai/ha)	Volunteer cereals, Canada thistle (suppression), cow cockle, wild buckwheat, Canada fleabane common ragweed narrow-leaved hawk's beard, dandelion, downy brome, flixweed, giant foxtail, green foxtail, hempnettle, kochia, lady's thumb, lamb's quarters, persian darnel, redroot pigweed,	Use this tank mix in summerfallow or prior to seeding wheat and barley. Refer to Express Toss-N-Go label for the appropriate weed growth stage. Add 350 mL/ha of surfactant-see list in section 7.3

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
Herbicide		Russian thistle, stinkweed, volunteer canola, volunteer flax, wild mustard, wild oats	

♦ For foxtail barley, refer to “**Perennial Weed Control**” table (section 8.1).

^B 0.56 kg ai/ha of 2,4-D. ^B, ^A Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

^C Use only amine formulations of MCPA prior to seeding in corn and field peas.

Banvel II is a registered trademark of BASF Corporation.

Pardner and Bucril® are registered trademarks of Bayer.

Express is a registered trademark of E.I.duPont de Nemours and Company.

Toss-N-Go is a registered trademark of E.I. duPont Canada Company.

7.3 SURFACTANT INFORMATION

NOTE:

Addition of Surfactant – Roundup Transorb HC Liquid Herbicide tank mixtures for annual weed control may require the addition of a surfactant registered for use such as Agral 90, Ag-Surf or Companion. Refer to Section 7.2 for recommendations. Surfactant should be added at a rate of 350 millilitres per hectare, in 50 - 100 litres of clean water.

7.4 ADDITIONAL IMPORTANT INFORMATION FOR ANNUAL WEED CONTROL

Roundup Transorb HC Liquid Herbicide applied alone will not control volunteers from crops containing the Roundup Ready® gene.

Allow at least 1 day after treatment before tillage.

Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds, in some situations.

For additional information and precautions, refer to “**General Information**” and “**Mixing and Application**” (Sections 4.0 and 5.0, respectively).

7.5 WEED CONTROL IN TRUFLEX™ ROUNDUP READY® CANOLA VARIETIES

WARNING: APPLY ROUNDUP TRANSORB HC LIQUID HERBICIDE LIQUID HERBICIDE TO TRUFLEX ROUNDUP READY CANOLA VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) TRUFLEX ROUNDUP READY CANOLA SEED. CANOLA NOT DESIGNATED AS TRUFLEX ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to “**General Information**” and “**Mixing and Application**” (sections 4.0 and 5.0, respectively).
- Apply to TruFlex Roundup Ready canola only as directed.

DO NOT APPLY BY AIR

The following table describes the rate and specific application instructions for weed control in TruFlex Roundup Ready canola varieties.

WEED CONTROL IN TRUFLEX ROUNDUP READY CANOLA VARIETIES

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
0.55-0.83 Single application	Emergence to first flower*	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’s-quarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers, wild buckwheat, shepherd’s purse¹, cow cockle¹, night-flowering catchfly¹, smartweed¹, <u>stork’s-bill, flixweed, narrow-leaved hawk’s beard</u></p> <p><u>Perennials: (Suppression)</u> Canada thistle, perennial sow thistle and dandelion</p>	<p>¹The 0.55 l/ha rate can be used for control of shepherd’s purse, cow cockle and night-flowering catchfly at the 1– 3 leaf stage of the crop or for control of smartweed at the 4 –6 leaf stage.</p> <p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p>

		Perennials: (Season-long control) Quackgrass,	
1.27 Single application	Emergence to first flower *	All the above weeds plus: <u>Perennials (season-long control)</u> <u>Canada thistle, and perennial sow thistle</u>	
0.83 Sequential applications	Emergence to first flower *	All the above weeds plus: <u>Annual Broadleaves</u> round-leaved mallow <u>Perennials (season-long control)</u> foxtail barley, Canada thistle, and perennial sow thistle	For sequential applications, ensure the crop has not advanced beyond the recommended growth stage
1.67 Single application	Emergence to first flower *	All the above weeds plus: Foxtail barley, smooth pigweed, common ragweed, cocklebur, eastern black nightshade, pennsylvania smartweed, foxtail (yellow and giant), fall panicum, wild proso millet, crabgrass (smooth and large), velvet leaf, biennial wormwood ² wire-stemmed muhly, volunteer adzuki beans ³ (Suppression only) Common Milkweed Yellow nutsedge	² Biennial wormwood should be at 2-8 leaf stage and actively growing. ³ For control of volunteer adzuki beans (unifoliolate to the 4 th trifoliolate leaf stage) apply 1.67 L/ha. A second 1.67 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliolate to fourth trifoliolate leaf stage and actively growing.
1.67 Sequential applications	Emergence to first flower *	All the above weeds plus: <u>Perennials (season-long control)</u> Dandelion Common Milkweed Field Bindweed Yellow nutsedge Horsenettle, Tall waterhemp Bur cucumber	A sequential application may be made at least 2 weeks after the first application. A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. Common milkweed should be 15-60 cm in height and actively growing. Yellow nutsedge should be 5-15 cm in height and actively growing. Horse-nettle (2-12-leaf

			stage) Tall waterhemp up to and including the 18 leaf stage) Bur Cucumber from the 1-18 leaf stage.
3.33 Single application	Emergence to 6 leaf	All the above weeds	One application allowed in crop per season

* First flower is when 50% of the plants in the field have no more than one flower.

Ensure the crop has not advanced beyond the recommended growth stage for all applications.

Guidelines:

Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.

Maximum 3.33L/ha is allowed for the postemergence use.

7.5.1 TRUFLEX ROUNDUP READY HYBRID CANOLA SEED PRODUCTION

For Use only in TruFlex Roundup Ready Canola Seed Production Systems

Apply using ground boom spray equipment.

Roundup Transorb HC Liquid Herbicide may be applied for the control of non-glyphosate tolerant canola pollen parental line(s) in hybrid canola seed production fields containing both TruFlex Roundup Ready canola line(s) and non- TruFlex Roundup Ready canola line(s).

When pollination is complete or near completion, non- TruFlex Roundup Ready canola pollen parental line(s) may be controlled with an application of 0.83 to 1.67 litres per hectare of Roundup Transorb HC Liquid Herbicide applied in 50 to 200 litres per hectare water.

Sequential applications (**maximum 2 applications**) may be used for the control of pollen parental line(s) but the total maximum rate applied must not exceed 1.67 litres per hectare. Allow at least 5 days between sequential applications.

7.6 WEED CONTROL IN ROUNDUP READY® CANOLA VARIETIES

WARNING: APPLY ROUNDUP TRANSORB HC LIQUID HERBICIDE ON ROUNDUP READY® CANOLA VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) ROUNDUP READY® CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS ROUNDUP READY® WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to “**General Information**” and “**Mixing and Application**” (sections 4.0 and 5.0, respectively).
- Apply Roundup Transorb HC Liquid Herbicide in Roundup Ready® canola only as directed in the following weed control table.
- Some short-term, visual yellowing may occur when Roundup Transorb HC Liquid Herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT APPLY BY AIR.

The following table describes the rate and specific application instructions for control of annual and perennial weeds in Roundup Ready® canola varieties.

WEED CONTROL IN ROUNDUP READY® CANOLA VARIETIES

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
0.55 – 1.27	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’s-quarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers*, wild buckwheat*,</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p> <p>Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use the 0.83 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd’s purse, cow cockle and night-flowering catchfly at the 1– to 3-leaf stage of the crop or for</p>

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
		shepherd's purse*, cow cockle*, night-flowering catchfly*, smartweed*, stork's-bill*, flixweed*, narrow-leaved hawk's beard*, round-leaved mallow*** <u>Perennials (suppression)**</u> Canada thistle, perennial sow thistle, dandelion <u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, and perennial sow thistle****	control of smartweed at the 4– to 6-leaf stage. ** A single application of 0.83 L/ha is required. *** Sequential applications of 0.83 L/ha are required. **** Sequential applications of 0.83 L/ha are required or a single application of 1.27 L/ha. For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. Maximum 1.66 L/ha is allowed for the postemergence use.

7.6.1 TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in Roundup Ready® canola varieties, apply a tank mixture of 0.28 L/ha of Lontrel 360 with 0.83 L/ha of Roundup Transorb HC Liquid Herbicide, in 100 litres of water per hectare. Apply when canola is in the 2- to 6-leaf stage. Refer to the Lontrel 360 and to the Roundup Transorb HC Liquid Herbicide labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

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7.6.2 ROUNDUP READY® HYBRID CANOLA SEED PRODUCTION

For Use only in Roundup Ready® Hybrid Canola Seed Production Systems

Apply using ground boom spray equipment.

Roundup Transorb HC Liquid Herbicide may be applied for the control of non-Roundup Ready® canola pollen parental line(s) in hybrid canola seed production fields containing both Roundup Ready® line(s) and non-Roundup Ready® line(s).

When pollination is complete or near completion, non-Roundup Ready® canola pollen parental line(s) may be controlled with an application of 0.83 to 1.67 litres per hectare of Roundup Transorb HC Liquid Herbicide applied in 50 to 200 litres per hectare water.

Sequential applications (**maximum 2 applications**) may be used for the control of pollen parental line(s) but the total maximum rate applied must not exceed 1.67 litres per hectare. Allow at least 5 days between sequential applications.

7.7 WEED CONTROL IN ROUNDUP READY OR ROUNDUP READY2 YIELD® SOYBEAN VARIETIES

7.7.1 WEED CONTROL IN ROUNDUP READY2 YIELD SOYBEAN VARIETIES

WARNING: APPLY ROUNDUP TRANSORB HC LIQUID HERBICIDE ON ROUNDUP READY2 YIELD SOYBEAN VARIETIES ONLY.

NOTE: ROUNDUP READY 2 YIELD SOYBEAN VARIETIES ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN ROUNDUP TRANSORB HC LIQUID HERBICIDE. ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY2 YIELD. SOYBEANS WHICH ARE NOT DESIGNATED AS ROUNDUP READY2 YIELD WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
1.67	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat,	<p>¹ A single application of 1.67 L/ha will provide suppression only.</p> <p>² For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be applied at least 2 weeks after the first application.</p> <ul style="list-style-type: none"> • A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (Use 100 – 200 L/ha water volumes)
		<p>stinkweed, Russian thistle, non-roundup ready canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night flowering catchfly, stork's bill, flixweed, narrow leaved hawk's-beard</p> <p>common milkweed^{1,2}, yellow nutsedge^{1,2}, field bindweed², perennial sow thistle, Canada thistle. wire-stemmed muhly.</p> <p>Bur cucumber (<i>Sicyos angulatus</i>)³</p> <p>Volunteer adzuki beans (<i>Vigna angularis</i>)⁴</p> <p>Biennial Wormwood (<i>Artemisia biennis</i>)⁵</p>	<ul style="list-style-type: none"> • Any second application made must be applied no later than the flowering stage of the soybean. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. • Wire-stemmed muhly should be 10-20 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment. • ³Sequential applications of 1.67 L/ha followed by 1.67 L/ha at the 1-18 leaf stage. Applications should be at least 2 weeks apart for best results. • ⁴For control of volunteer adzuki beans (unifoliolate to the 4th trifoliolate leaf stage) apply 1.67 L/ha. A second 1.67 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliolate to fourth trifoliolate leaf stage and actively growing

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
			<ul style="list-style-type: none"> • ⁵ Only one application per season at 1.67L/ha. Biennial wormwood should be at 2-8 leaf stage and actively growing.
3.33	First trifoliolate leaf stage through flowering	All weeds listed above plus horse-nettle ⁶ and tall waterhemp ⁷	<ul style="list-style-type: none"> • Only one application per season at 3.33 L/ha. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment. <p>⁶For season-long control of horse-nettle (<i>Solanum carolinense</i>) (2- to 12-leaf stage) or, for control of tall waterhemp (<i>Amaranthus tuberculatos</i>) (up to and including the 18-leaf stage) apply 3.33 L/ha. Alternatively, sequential applications of 1.67 L/ha followed by 1.67 L/ha may be applied. Applications should be at least 2 weeks apart for best results.</p> <p>⁷For the control of Tall Waterhemp use the higher rate if weeds are beyond the 6-leaf stage.</p>
4.67	First trifoliolate leaf stage through flowering	All weeds listed above plus control of volunteer alfalfa and bromegrass	<p>Only one application per season at 4.67 L/ha.</p> <p>Alfalfa should have 9 or more leaves and be at least 10-15 cm</p>

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (Use 100 – 200 L/ha water volumes)
			<p>tall.</p> <p>Bromegrass should have at least 3-5 leaves and be at least 10-15 cm tall.</p> <p>Short term yellowing may occur in sprayer overlap areas with the 4.67 L/ha application rate. This effect is temporary and will not influence crop growth or yield.</p>

◆ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

7.7.2 WEED CONTROL IN ROUNDUP READY SOYBEAN VARIETIES

WARNING: APPLY ROUNDUP TRANSORB HC LIQUID HERBICIDE ON ROUNDUP READY SOYBEAN VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY. SOYBEANS WHICH ARE NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

Apply 1.67 – 3.33 L/ha of Roundup Transorb HC Liquid Herbicide to Roundup Ready soybean varieties.

See Section 7.6.1 for use directions.

Do not apply the 4.67 L/ha rate to non-Roundup Ready² Yield soybean varieties.

7.7.3 TANK MIXTURES

Tank mixtures may be applied to both Roundup Ready² Yield and Roundup Ready soybean varieties.

Roundup Transorb HC Liquid Herbicide Plus Pursuit Herbicide

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit herbicide may be tank mixed with Roundup Transorb HC Liquid Herbicide at a rate of 1.67 liters per hectare. Use 0.16 to 0.21 liters per hectare of Pursuit and apply up to and including the 3rd trifoliolate leaf stage of the Roundup Ready soybeans in 100-200 liters per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimeters (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit as per instructions on the Pursuit label and then add Roundup Transorb HC Technology Liquid Herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of Roundup Transorb HC Liquid Herbicide and Pursuit herbicide on Roundup Ready² Yield and Roundup Ready soybean varieties.

Only one application per season of Roundup Transorb HC Liquid Herbicide at 1.67 liters per hectare tank mixed with Pursuit herbicide at 0.16 to 0.21 liters per hectare is permitted.

Refer to the Pursuit herbicide label for further safety precautions and handling instructions.

Roundup Transorb HC Liquid Herbicide Plus FirstRate™ Herbicide (For Use in Eastern Canada Only)

For added residual control of common ragweed, velvetleaf, cocklebur, jimsonweed and giant ragweed, FirstRate Herbicide may be tank mixed with Roundup Transorb HC Liquid Herbicide at a rate of 0.83 - 1.67 liters per hectare. Use 20.8 grams per hectare of FirstRate Herbicide.

Do not harvest soybean plants for forage or hay. Do not harvest soybeans for 65 days after application.

Only one application per season of Roundup Transorb HC Liquid Herbicide tank mixed with FirstRate Herbicide is permitted.

Refer to the FirstRate Herbicide label for further safety precautions and handling instructions.

Roundup Transorb HC Liquid Herbicide and Classic 25 DF Herbicide*

For season-long control of dandelion, annual sow thistle, and yellow nutsedge*, apply Classic 25 DF Herbicide at 36 grams per hectare plus either Roundup Transorb HC

Liquid Herbicide at 1.67 litres per hectare. Add a non-ionic surfactant such as Agral 90, Citowett Plus, or Ag-Surf at 0.2% v/v. Apply when soybeans are in the 1-3 trifoliolate stage; dandelions and annual sow thistle less than 15 cm tall and across; and up to the 8 leaf stage for yellow nutsedge. **USE THIS TANK MIXTURE ONLY ON SOYBEANS WITH THE ROUNDUP READY® TRAIT.**

Consult the Classic 25 DF Herbicide label for tank mixing instructions and use precautions including instructions on replanting to other crops.

*Use this tank mix only in cases of heavy infestation of yellow nutsedge.

Roundup Transorb HC Liquid Herbicide plus Sencor® 75 DF Herbicide for Control of Spreading Atriplex (Eastern Canada only)

For the control of spreading atriplex, apply a preplant application of Sencor 75 DF Herbicide at 0.75 - 1.11 kg product per hectare on medium textured soils or 1.11 – 1.5 kg product per hectare on fine textured soils plus Roundup Transorb HC Liquid Herbicide at 1.67 litres per hectare. Do not apply on coarse textured soils. Apply when spreading atriplex is up to the 10-leaf stage of growth. Only one application per year is permitted.

Refer to the Sencor 75 DF Herbicide label for further use directions, safety precautions and handling instructions. Consult Table entitled "Sencor 75 DF Alone: Preemergence Application" for specific rates based on soil types and organic matter.

Roundup Transorb HC Liquid Herbicide plus Assure® II Herbicide

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED ♦	COMMENTS
1.67 – 3.33 L/ha Roundup Transorb HC Liquid Herbicide +	First trifoliolate leaf stage through flowering.	Volunteer Roundup Ready corn. Apply at the 2- to 6- leaf stage of the weed.	See additional information following this table.
0.25 - 0.38 L/ha Assure II Herbicide			

*Sure Mix may or may not be added to this tank mix

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

Volunteer Roundup Ready Corn Control

For control of volunteer Roundup Ready corn, Assure II herbicide may be tank mixed with Roundup Transorb HC Liquid Herbicide. Use 1.67 to 3.33 litres per hectare Roundup Transorb HC Liquid Herbicide and 0.25 - 0.38 litre per hectare of Assure II herbicide.

The higher rate of Assure II may be required when there are high populations of volunteer Roundup Ready corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 300 litres per hectare of clean water.

Mixing: Add and mix Assure II herbicide as per instructions on the Assure II herbicide label and then add Roundup Transorb HC Liquid Herbicide as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliolate leaf stage through flowering and when the volunteer Roundup Ready corn is at the 2- to 6-leaf stage.

A PHI (preharvest interval) of 80 days is required for the tank-mix of Roundup Transorb HC Liquid Herbicide and Assure II herbicide on Roundup Ready2 Yield and Roundup Ready soybean varieties.

Refer to the Assure II Herbicide label for further safety precautions and handling instructions.

Roundup Transorb HC Liquid Herbicide plus Venture® L Herbicide

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS
1.67 – 3.33 L/ha Roundup Transorb HC Liquid Herbicide + 0.45 - 0.60 L/ha Venture L Herbicide**	First trifoliolate leaf stage through third trifoliolate leaf stage	Volunteer Roundup Ready corn. Apply at the 2- to 5-leaf stage of the weed.	See additional information following this table.

*Turbocharge may or may not be added to this tank mix

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

For control of volunteer Roundup Ready corn, Venture L Herbicide may be tank mixed with Roundup Transorb HC Liquid Herbicide. Use 1.67 to 3.33 litres per hectare Roundup Transorb HC Liquid Herbicide and 0.45 - 0.60 litre per hectare of Venture L Herbicide.

The higher rate of Venture L Herbicide may be required when there are high populations of volunteer Roundup Ready corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 200 litres per hectare of clean water.

Mixing: Add and mix Venture L Herbicide as per instructions on the Venture L Herbicide label and then add Roundup Transorb HC Liquid Herbicide as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliate leaf stage through third trifoliate leaf stage and when the volunteer Roundup Ready corn is at the 2- to 5- leaf stage.

A PHI (preharvest interval) of 90 days is required for the tank-mix of Roundup Transorb HC Liquid Herbicide and Venture L Herbicide on Roundup Ready2 Yield and Roundup Ready soybean varieties.

Refer to the Venture L Herbicide label for further safety precautions and handling instructions.

FirstRate is a trademark of Dow AgroSciences LLC.

Pursuit is a registered trademark of BASF.

Assure and Classic are registered trademarks of E.I. duPont de Nemours and Company.

Venture is a registered trademark of a Syngenta group company.

7.8 WEED CONTROL IN ROUNDUP READY 2™ XTEND SOYBEANS

Roundup Transorb HC Liquid Herbicide and XtendiMAX with VaporGrip Technology Herbicide Use In Roundup Ready 2 Xtend Soybeans

WARNING: THIS TANK MIXTURE CAN ONLY BE APPLIED TO SOYBEAN VARIETIES DESIGNATED AS ROUNDUP READY 2 XTEND. DO NOT APPLY THIS TANK MIXTURE TO ROUNDUP READY 2 YIELD OR ROUNDUP READY SOYBEAN VARIETIES.

For control of many annual and perennial broadleaf weeds, as well as residual suppression or control of small seeded broadleaf weeds, apply Xtendimax with VaporGrip Technology at 823 mL to 1.71 L/ha plus Roundup Transorb HC Liquid Herbicide at 1.67 L/ha to 4.67 L/ha in a minimum spray volume of 100 L/ha.

Pre-Harvest Interval(s):

- 7-10 days for soybean forage and 13–15 days for soybean hay.

Apply XTENDIMAX WITH VAPORGRIP TECHNOLOGY HERBICIDE to weeds < 10 cm

Do not apply this tank mixture to Roundup Ready 2 Xtend soybean using aerial spray equipment.

Refer to the Xtendimax with VaporGrip Technology herbicide label for general precautions, directions on spray drift management, list of weeds controlled and for further safety precautions and handling instructions.

7.9 WEED CONTROL IN CORN VARIETIES WITH ROUNDUP READY® 2 TECHNOLOGY

WARNING: APPLY ROUNDUP TRANSORB HC LIQUID HERBICIDE ON ONLY CORN VARIETIES THAT ARE DESIGNATED AS CONTAINING ROUNDUP READY® 2 TECHNOLOGY (I.E. CONTAINS A ROUNDUP READY GENE).

NOTE: CORN VARIETIES CONTAINING ROUNDUP READY® 2 TECHNOLOGY ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN ROUNDUP TRANSORB HC LIQUID HERBICIDE. ALWAYS USE PEDIGREED (I.E. CERTIFIED) CORN SEED DESIGNATED AS CONTAINING ROUNDUP READY® 2 TECHNOLOGY. CORN WHICH IS NOT DESIGNATED AS CONTAINING ROUNDUP READY® 2 TECHNOLOGY MAY BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (use 100-200 L/ha water volumes)
1.67	Up to and including 8 leaf stage	Velvetleaf, common ragweed, common lamb's-quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard	¹ A single application of 1.67 L/ha will provide suppression only. ² For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be at least 2 weeks after the first application. • A second 1.67 L/ha application

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (use 100-200 L/ha water volumes)
		<p>grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, wild mustard, Russian thistle, non-roundup ready canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night-flowering catchfly, stork's-bill, flixweed, narrow-leaved hawk's-beard</p> <p>common milkweed^{1,2}, yellow nutsedge^{1,2}, round-leaved mallow², field bindweed², perennial sow thistle, Canada thistle, wire-stemmed muhly</p>	<p>may be used for late weed flushes emerging after the initial treatment.</p> <ul style="list-style-type: none"> • Any second application must be applied no later than the 8 leaf stage of the corn. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. • Wire-stemmed muhly should be 10-20 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment.
3.33	Up to and including 6 leaf stage	All weeds listed above	<ul style="list-style-type: none"> • Only one application per season at 3.33 L/ha. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment.

◆ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

7.9.1 TANK MIXTURES

For tank mixtures, add herbicide according to instructions on the product label, and then add Roundup Transorb HC Liquid Herbicide according to instructions on this label (section 5). Refer to the tank mix herbicide product labels for further safety precautions and product handling instructions.

DO NOT APPLY BY AIR

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (Use 100-200 L/ha water volumes)
1.67 L/ha Roundup Transorb HC Liquid Herbicide + 0.75 – 1.0 kg ai/ha atrazine*	Up to and including the 5-leaf stage.	Residual control of lamb’s-quarters, redroot pigweed, common ragweed.	Tank-mix should be used when only a single application timing is desired. Use the higher rate of atrazine for heavier weed infestations.
1.67 L/ha Roundup Transorb HC Liquid Herbicide + 2.5 – 3.7 L/ha Marksman Herbicide	Up to and including the 5-leaf stage.	Residual control of lamb’s-quarters, redroot pigweed, common ragweed, velvetleaf.	Tank-mix should be used when only a single application timing is desired. Use the higher rate of Marksman for heavier weed infestations.
One application of 1.67 L/ha Roundup Transorb HC Liquid Herbicide + 0.56 – 1.12 L/ha 2,4-D Herbicide**	Before the corn is 15 cm tall (leaf extended) and/or before the 6 leaf stage.	Volunteer Roundup Ready canola – up to the 4 leaf stage.	Tank mix is most effective when treating small (4 leaf or less) canola plants.
Two applications: First application: 1.67 L/ha	Before the corn is 15 cm tall (leaf extended) and/or before the 6 leaf	Volunteer Roundup Ready canola – up to the 4 leaf stage.	Tank mix is most effective when treating small (4 leaf or less) canola

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100-200 L/ha water volumes)
<p>Roundup Transorb HC Liquid Herbicide + 0.56 L/ha 2,4-D Herbicide**</p> <p>Second application: 1.67 L/ha Roundup Transorb HC Liquid Herbicide + 0.42-0.56 L/ha 2,4-D Herbicide**</p>	stage.		plants.
<p>1.67 L/ha Roundup Transorb HC Liquid Herbicide + 13.3 g/ha Peak 75WG Herbicide + 0.3 L/ha Banvel II Herbicide + non ionic surfactant (0.2% v/v)</p>	Spike up to and including the 5 leaf stage.	Volunteer Roundup Ready canola – up to the 4 leaf stage.	Tank mix is most effective when treating small (4 leaf or less) canola plants.
<p>1.67 L/ha Roundup Transorb HC Liquid Herbicide + 1.1 L/ha Dyvel DSp Liquid Herbicide</p>	Before the corn is 15 cm tall (leaf extended)	Volunteer Roundup Ready canola – up to the 4 leaf stage.	Tank mix is most effective when treating small (4 leaf or less) canola plants.
<p>1.67 L/ha Roundup Transorb HC Liquid Herbicide</p>	3 - 8 leaf stage of corn	Eastern black nightshade, velvetleaf, redroot pigweed, common	Add Agral 90 at 0.2% v/v Apply up to the 8

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100-200 L/ha water volumes)
+ 0.21 L/ha Callisto® 480SC Herbicide		ragweed (suppression only) plus emerged annual and perennial weeds	leaf stage of broadleaf weeds Some perennial weeds may not be controlled with these rates
1.67 L/ha Roundup Transorb HC Liquid Herbicide + 0.21 L/ha Callisto 480SC Herbicide + 0.58 L/ha Aatrex Liquid 480 Herbicide	3 - 8 leaf stage of corn	Eastern black nightshade, velvetleaf, redroot pigweed, common ragweed plus emerged annual and perennial weeds	Add Agral 90 at 0.2% v/v Apply up to the 8 leaf stage of broadleaf weeds Some perennial weeds may not be controlled with these rates
1.67 L/ha Roundup Transorb HC Liquid Herbicide + 2.5 L/ha Primextra® II Magnum® Herbicide	Apply up to and including 6 leaf stage of corn.	Annual grasses and broadleaf weeds, emerged annual or perennial weeds	This tank mix requires the use of a surfactant. AGRAL 90 or Ag-Surf may be used. Do NOT apply this tank-mix to soils with less than 1% or more than 10% organic matter
1.67 L/ha Roundup Transorb HC Liquid Herbicide + 0.625 L/ha Banvel II Herbicide	Spike to 5 leaf	Weeds controlled by Roundup Transorb HC plus improved control of Velvetleaf and extended control of late germinating, deep rooted annuals on the Banvel II Herbicide label.	
1.67 L/ha Roundup Transorb HC Liquid	2 to 6 leaf	Weeds controlled by Roundup Transorb HC plus extended	Non-ionic surfactant applied at 0.2% v/v

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (Use 100-200 L/ha water volumes)
Herbicide + 285 g/ha Distinct Herbicide + Non ionic surfactant + 28% UAN		control of late emerging weeds listed on the Distinct Herbicide label.	28% UAN applied at 1.25% v/v
1.67 L/ha Roundup Transorb HC Liquid Herbicide + 1.25 L/ha Dual II Magnum Herbicide + 1.0 kg ai/ha atrazine*	Spike to 6 leaf	Weeds controlled by Roundup Transorb HC plus extended control of annual grass and broadleaf weeds on the tank mix partner labels.	
1.67 L/ha Roundup Transorb HC Liquid Herbicide + 2.8 kg/ha Prowl 60 WG Herbicide + 1.0 kg ai/ha atrazine*	Up to and including the 4 leaf stage of corn	Weeds controlled by Roundup Transorb HC plus extended control of annual grass and broadleaf weeds on the tank mix partner labels.	
1.67 L/ha Roundup Transorb HC Liquid Herbicide + 0.21 L/ha Callisto 480SC Herbicide + Non ionic surfactant	3 to 8 leaf stage of corn	Weeds controlled by Roundup Transorb HC plus extended control of eastern black nightshade, velvetleaf, redroot pigweed, and common ragweed.	Add non ionic surfactant at 0.2% v/v
1.67 L/ha Roundup Transorb HC Liquid Herbicide +	Spike to 6 leaf stage of corn	Weeds controlled by Roundup Transorb HC plus extended control of annual grass and broadleaf	

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (Use 100-200 L/ha water volumes)
2.5 - 3.0 L/ha Primextra II Magnum Herbicide		weeds on the Primextra II Magnum label.	

* 0.75 to 1.0 kilogram active ingredient atrazine per hectare is equivalent to 1.56 to 2.08 litres per hectare of Aatrex Liquid 480™.

** 500 g ai/litre of 2,4-D formulation. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D. Some corn hybrids may be injured by an application of 2,4-D. It is recommended that the corn seed provider be contacted regarding the tolerance of the corn hybrid to be treated, to 2,4-D prior to application of this tank mix.

◆ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

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Marksman, Banvel II and Dyvel DS are registered trademarks of BASF Corporation.

7.10 WEED CONTROL IN SWEET CORN VARIETIES WITH ROUNDUP READY 2 TECHNOLOGY

WARNING: APPLY ROUNDUP TRANSORB HC LIQUID HERBICIDE ON ONLY SWEET CORN VARIETIES THAT ARE DESIGNATED AS CONTAINING ROUNDUP READY 2 TECHNOLOGY (I.E. CONTAINS A ROUNDUP READY GENE).

NOTE: SWEET CORN VARIETIES CONTAINING ROUNDUP READY 2 TECHNOLOGY ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN ROUNDUP TRANSORB HC LIQUID HERBICIDE. ALWAYS USE PEDIGREED (I.E. CERTIFIED) SWEET CORN SEED DESIGNATED AS CONTAINING ROUNDUP READY 2 TECHNOLOGY. SWEET CORN WHICH IS NOT DESIGNATED AS CONTAINING ROUNDUP READY 2 TECHNOLOGY MAY BE DAMAGED OR DESTROYED BY THIS TREATMENT.

WEED CONTROL:

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (use 100-200 L/ha water volumes)
1.67	Up to and including 8	See Weeds Controlled in Section 7.7 Table	• See Comments in Section 7.7 Table

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (use 100-200 L/ha water volumes)
	leaf stage		<ul style="list-style-type: none"> • A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application must be applied no later than the 8 leaf stage of the corn.
3.33	Up to and including 6 leaf stage	See Weeds Controlled in Section 7.7 Table	<ul style="list-style-type: none"> • See Comments in Section 7.7 Table • Only one application per season at 3.33 L/ha.

◆ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

◆ Plants not fully emerged at the time of application will escape treatment.

TANK MIXES - Do not apply Tank Mixes to sweet corn varieties with Roundup Ready 2 Technology

Allow a minimum of 30 days between application of this product and harvest.

DO NOT APPLY BY AIR

7.11 WEED CONTROL IN ROUNDUP READY® SUGAR BEETS

WARNING: APPLY ROUNDUP TRANSORB HC LIQUID HERBICIDE ON ROUNDUP READY® SUGAR BEET VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SUGAR BEET SEED DESIGNATED AS ROUNDUP READY®. SUGAR BEETS WHICH ARE NOT DESIGNATED AS ROUNDUP READY® WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

For weed control in Roundup Ready® sugar beets apply 0.83 – 1.67 L/ha of Roundup Transorb HC Liquid Herbicide to emerged weeds. Refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (Sections 7.1 and 8.1, respectively) for a listing of weeds controlled.

Apply Roundup Transorb HC Liquid Herbicide to emerged weeds up to 15 cm in height.

Up to four applications of Roundup Transorb HC Liquid Herbicide may be applied to Roundup Ready® sugar beets. Allow a minimum of 10 days between applications.

Do not harvest Roundup Ready® sugar beets within 30 days after the final application of Roundup Transorb HC Liquid Herbicide.

7.12 WEED CONTROL IN ROUNDUP READY ALFALFA VARIETIES (DO NOT APPLY TO ALFALFA GROWN FOR SEED PRODUCTION)

WARNING: APPLY ROUNDUP TRANSORB HC LIQUID HERBICIDE LIQUID HERBICIDE TO ROUNDUP READY ALFALFA VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E. CERTIFIED) ALFALFA SEED DESIGNATED AS ROUNDUP READY. ALFALFA SEED WHICH IS NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

ROUNDUP READY ALFALFA VARIETIES ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN ROUNDUP TRANSORB HC LIQUID HERBICIDE LIQUID HERBICIDE.

DO NOT APPLY BY AIR.

Applications can be made from emergence until 5 days prior to cutting.

A sequential treatment may be applied to Roundup Ready alfalfa varieties for control of late weed flushes.

Allow a minimum of 5 days between application and cutting of alfalfa.

Additional applications of this product should be at least 25 days apart.

Total number of in-crop applications not to exceed 3 per growing season.

New Stand Establishment (Seedling Year): Due to the biology and breeding constraints of alfalfa, up to 10 percent of the seedlings may not contain a Roundup Ready gene and will not survive or thrive after the first application of this product. To limit the undesirable effects of stand gaps created by the loss of alfalfa plants not containing a Roundup Ready gene, an application of this product should be applied at or before the 4 trifoliate leaf stage of alfalfa during the establishment (seedling) year.

Note: Where Roundup Ready alfalfa is grown with a companion or cover crop, or is overseeded with a second species, in-crop (over-the-top) applications of this product will eliminate the non-Roundup Ready (non-glyphosate tolerant) species.

WEED CONTROL IN ROUNDUP READY ALFALFA VARIETIES

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
1.67 single application	Emergence until 5 days prior to cutting	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass, giant and yellow foxtail, fall Panicum, wild proso millet, smooth and large crabgrass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’s-quarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers, wild buckwheat, shepherd’s purse, cow cockle, night-flowering catchfly, smartweed, stork’s-bill, flixweed, narrow-leaved hawk’s beard, smooth pigweed, cocklebur, Eastern black nightshade, velvetleaf, biennial wormwood¹.</p> <p><u>Perennials (season-long control)</u> Quackgrass, Canada thistle, and perennial sow thistle, foxtail barley, dandelion.</p>	<p>All weeds should be actively growing at time of application.</p> <p>¹Biennial wormwood should be at 2-8 leaf stage.</p>
3.33 single application	Emergence until 5 days prior to cutting	<p><u>All the above weeds plus:</u></p> <p><u>Annual Broadleaves</u> Round-leaved mallow</p> <p><u>Perennials (season-long control):</u> Foxtail barley², dandelion², common milkweed³, field bindweed, yellow nutsedge⁴, horsenettle⁵, tall waterhemp⁶, bur cucumber⁷</p>	<p>²3.33 L/ha rate is for large, more established plants, heavy infestation or if plants are stressed.</p> <p>³Common milkweed should be 15-60 cm in height.</p> <p>⁴Yellow nutsedge should be 5-15 cm in height.</p> <p>⁵Horse-nettle from the 2 to 12 leaf stage).</p> <p>⁶Tall waterhemp up to and including the 18-leaf stage.</p> <p>⁷Bur cucumber from the 1-18 leaf stage.</p>

8.0 PERENNIAL WEED CONTROL

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR.

When applied as recommended under the conditions described, this product will control the perennial weeds listed in the following table.

8.1 PERENNIAL WEED CONTROL WITH ROUNDUP TRANSORB HC LIQUID HERBICIDE

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Quackgrass (control, light to moderate infestations)	3 to 4 green leaves or more	1.67	50 - 300	<ul style="list-style-type: none"> • Apply in clean water using flat fan nozzles. • Allow 3 or more days after treatment before tillage. • Refer to “Quackgrass” notes in section 8.2.1 for more information. • For higher volumes (i.e., 150 – 300 L/ha) an approved surfactant must be added at 0.5 L per 100 L of clean water (0.5% v/v). Refer to list in section 8.2.2. See also below.
Quackgrass (long term control, heavy infestations, high water volumes)	3 to 4 green leaves or more	1.67 – 4.67	50 - 300	<ul style="list-style-type: none"> • Allow 3 or more days after treatment before tillage. • Rates higher than 1.67 L/ha will provide more consistent, longer term control, especially with heavier infestations and/or higher water volumes (i.e., 150 – 300 L/ha). • Refer to “Quackgrass” notes in section 8.2.1 for more information.
Canada Thistle	Rosette stage (summerfallow)	1.67	50 - 100	<ul style="list-style-type: none"> • Apply in clean water using flat fan nozzles. • Allow 10 or more days after treatment before tillage. • Refer to “Canada Thistle” notes in section 8.2.3 for more information.
Canada Thistle	Bud stage or beyond	3.17 – 4.67	100 - 300	<ul style="list-style-type: none"> • Allow 5 or more days after treatment before tillage.
Field Bindweed	Full bloom or beyond	4.67 - 8	100 - 300	<ul style="list-style-type: none"> • Allow 7 or more days after treatment before tillage.

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Common Milkweed*	Bud to full bloom (preharvest)	1.67	50 – 100	<ul style="list-style-type: none"> • See “Preharvest Treatment” (section 9.9) for more information. • Allow 7 or more days after treatment before tillage. • Reduced control may occur after full bloom. • Common milkweed may not all be in the correct stage, therefore, repeat treatments may be required.
	Bud to full bloom	8	100 - 300	
Toadflax	Vegetative Stage (summerfallow)	1.67	50 - 100	<ul style="list-style-type: none"> • Apply in clean water using flat fan nozzles. • Allow 7 or more days after treatment before tillage in summerfallow. • For more information, see “Toadflax Control” (section 8.2.4), or “Preharvest Treatment” (Section 9.9).
	Bud to full bloom (preharvest)			
Alfalfa	Early bud to full bloom stage	2.47 – 3.33	50 - 300	<ul style="list-style-type: none"> • Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. • For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see section 8.2.6.
	Fall applications only			

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Dandelion	< 15 cm	1.67	50 – 100	<ul style="list-style-type: none"> • Allow 3 or more days after treatment before tillage for all rates. • Use the higher rate when infestations are heavy. • Refer to “Dandelion” notes in section 8.2.5 for more information. • Allow 7 or more days after treatment before tillage. For more information, see “Preharvest Treatment” (section 9.9).
	> 15 cm	2.47 – 3.33	50 – 300	
	Rosette to full bloom (preharvest)	1.67	50 - 100	
Foxtail Barley	Seedling to heading	1.67 – 3.33	50 - 100	<ul style="list-style-type: none"> • Allow a minimum of 1 day after treatment before tillage or seeding. • Use higher rates for larger, more established plants, heavy infestations or if plants are stressed.
Other Perennials (see listing section 6.2)	Early heading or early bud stage	4.67 - 8	100 - 300	<ul style="list-style-type: none"> • Allow 7 or more days after treatment before tillage.

*NOTE: For spot treatment, mix 80 millilitres of product in 5 litres of clean water per 100 m² (1.67 – 8 litres per hectare is approximately equivalent to 17 – 80 mL/100m², respectively).

8.2 SPECIAL NOTES FOR PERENNIAL WEED CONTROL

8.2.1 QUACKGRASS

For **season-long control on fall tilled ground**: Apply 1.67 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

8.2.2 SURFACTANT INFORMATION

The following is a list of approved surfactants for use with Roundup Transorb HC Liquid Herbicide for control of quackgrass:

Agral 90 Companion
Ag Surf

Always refer to surfactant label for specific instructions regarding use of that product.

8.2.3 CANADA THISTLE

Control of Canada Thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

ROUNDUP TRANSORB HC LIQUID HERBICIDE PLUS BANVEL II TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summerfallow or in postharvest stubble, apply 1.13 litres per hectare Roundup Transorb HC Liquid Herbicide plus 1.25 litres per hectare Banvel II in 100 – 200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90, Ag-Surf or Companion.

For best results in summerfallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a damaging frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

8.2.4 TOADFLAX

Control of Toadflax in a Summerfallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 10th to July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

8.2.5 DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

8.2.6 ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 1.67 to 3.33 litres per hectare Roundup Transorb HC Liquid Herbicide and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 1.67 to 3.33 litres per hectare Roundup Transorb HC Liquid Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14 day interval between application and planting is required.

Use the higher Roundup Transorb HC Liquid Herbicide rates when perennial grasses are prevalent.

8.2.6.1 REMOVAL OF ROUNDUP READY ALFALFA – TANK MIXES

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

The addition of a tank-mix partner is required to remove a stand of Roundup Ready alfalfa. Herbicide applications should be made in the fall when the Roundup Ready Alfalfa is at the bud stage of growth. Tillage at 2-3 weeks following herbicide application can improve control and consistency under stressed conditions (drought, frost, cold temperatures).

Use the following products and rates to control Roundup Ready alfalfa plus annual and perennial weeds (See Sections 7.1 and 8.1).

- Mix with water to achieve a total applied volume of 100 L/ha.
- Apply to Roundup Ready alfalfa in the pre-bud to start of flowering stage.
 - Best control achieved when the majority of plants are in the bud stage of development

Roundup Transorb HC Liquid Herbicide Liquid Herbicide at 1.67-3.34 L/ha <u>plus only one of the following Tank Mix Products:</u>

2,4-D* Herbicide at 1.52 L/ha <u>or:</u>
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Banvel II Herbicide at 1.25 L/ha <u>or:</u>

Lontrel 360 Herbicide at 0.56-0.83 L/ha <u>or:</u>
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2,4-D* Herbicide at 1.05 L/ha + Banvel II Herbicide at 1.25 L/ha <u>or:</u>

2,4-D* Herbicide at 1.05 L/ha + Lontrel 360 Herbicide at 0.42 L/ha or:

Curtail M Herbicide at 2.0 - 3.0 L/ha

*rate for a 564 g ae/L formulation of 2,4-D. Adjust rates for other formulations.
Includes both amine and ester formulations.

8.2.7 ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to “**Perennial Weed Control with Roundup Transorb HC Liquid Herbicide**” (section 8.1).

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow-up tillage after application should be delayed 5 to 7 days for best results. See “**Weed Control**” tables (sections 7.1 and 8.1) for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

9.0 CROPLAND SITUATIONS

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 and 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY

BY AIR EXCEPT FOR PREHARVEST AERIAL APPLICATION (SECTION 9.9.2).

This product can be applied as a broadcast spray or spot treatment prior to planting all crops, postharvest to annual crops, preharvest in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, soybeans, dry beans and forages, and in summerfallow. It may also be applied as a broadcast spray in Roundup Ready Corn 2, soybean or canola varieties (sections 7.5, 7.6 and 7.7). It may be applied as a directed spray in orchards, vineyards, blueberries and strawberries, and using selective equipment in soy and dry beans, orchards, vineyards, cranberries and strawberries (refer to specific sections below for more information). **For specific instructions on weed control in the following cropping situations, always refer to “Annual and Perennial Weed Control” (sections 7.0 and 8.0) for more information.**

9.1 PRIOR TO PLANTING – ALL CROPS

This product may be applied prior to planting all crops for control of emerged weeds listed on this label. Ensure weeds are at the desired stage at the time of application. This product does not provide preemergent weed control and newly germinating weeds may be a problem in the crop. **APPLY BEFORE SEEDING OR TRANSPLANTING.**

9.1.1 PRIOR TO PLANTING – TANK MIXES* - SOYBEANS

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

WHERE TANK MIX PARTNER LABELS REFER ONLY TO THE OLDER (360 G/L) GLYPHOSATE PRODUCTS, E.G. ROUNDUP ORIGINAL OR ROUNDUP TRANSORB, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.

Roundup Transorb HC Liquid Herbicide plus Pursuit Herbicide

Roundup Transorb HC Liquid Herbicide plus Pursuit Herbicide can be applied prior to or after seeding, but before crop emergence. Roundup Transorb HC Liquid Herbicide will control emerged weeds listed on this label when applied as directed (refer to Annual and Perennial Weed control sections in the Roundup Transorb HC Liquid Herbicide product label). Pursuit Herbicide will control weeds germinating from seed.

ONLY SOYBEANS, WHITE BEANS, KIDNEY BEANS, PROCESSING PEAS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 100 DAYS AFTER THE

APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE

Roundup Transorb HC Liquid Herbicide plus metribuzin (Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide, or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds taller than 4 cm in soybeans, apply Roundup Transorb HC Liquid Herbicide in tank mix with Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide or Lexone DF Herbicide as a preplant surface or pre-emergence application before crop emergence.

Roundup Transorb HC Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in soybeans. Apply Roundup Transorb HC Liquid Herbicide in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.15– 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

Perennial weeds such as quack grass may not be controlled with lower rates of Roundup Transorb HC Liquid Herbicide. Use higher rates of Roundup Transorb HC Liquid Herbicide if perennial weeds are present.

Roundup Transorb HC Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus metribuzin (Sencor 75DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds in soybeans. Apply as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence. Perennial weeds such as quack grass may not be controlled with lower rates of Roundup Transorb HC Liquid Herbicide.

Roundup Transorb HC Liquid Herbicide plus Broadstrike Dual Magnum Soybean Herbicide

Broadstrike Dual Magnum Soybean Herbicide at 1.56 L/ha may be tank mixed with Roundup Transorb HC Liquid Herbicide at 1.7 L/ha for control of existing annual weeds and certain perennial weeds including quack grass. This tank mix may be applied preplant surface or pre-emergence in minimum till or no-till conditions. When mixing, add the Broadstrike Dual Magnum Soybean Herbicide component first.

Roundup Transorb HC Liquid Herbicide plus linuron

For burndown and residual control of selected annual weeds apply Roundup Transorb HC Liquid Herbicide plus linuron after seeding but before crop emergence.

Roundup Transorb HC Liquid Herbicide plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with Roundup Transorb HC Liquid Herbicide. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

Roundup Transorb HC Liquid Herbicide plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems: Apply this tank mixture in a minimum of 200 L/ha of total volume.

9.1.2 PRIOR TO PLANTING – TANK MIXES* - CORN

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

WHERE TANK MIX PARTNER LABELS REFER TO ONLY TO OLDER (360 G/L) GLYPHOSATE PRODUCTS, E.G. ROUNDUP ORIGINAL OR ROUNDUP TRANSORB, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.

Roundup Transorb HC Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn. Apply Roundup Transorb HC Liquid Herbicide in tank mix with Dual Magnum or Dual II Magnum at 1.25 to 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of Roundup Transorb HC Liquid Herbicide. Use higher rates of Roundup Transorb HC Liquid Herbicide if perennial weeds are present.

Roundup Transorb HC Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus Aatrex Liquid 480 Herbicide

For burndown and residual control of selected annual weeds in corn. Apply Roundup Transorb HC Liquid Herbicide in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.25 – 1.75 L/ha plus Aatrex Liquid 480 Herbicide at 2.1 - 3.1 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of Roundup Transorb HC Liquid Herbicide. Use higher rates of Roundup Transorb HC Liquid Herbicide if perennial weeds are present.

Roundup Transorb HC Liquid Herbicide plus Primextra II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn apply Roundup Transorb HC Liquid Herbicide plus Primextra II Magnum preplant surface or pre-emergence application before crop emergence. This tank mixture requires the use of a surfactant, either Agral 90 or Ag-Surf. See mixing instructions for more information.

Perennial weeds such as quack grass may not be controlled with lower rates of Roundup Transorb HC Liquid Herbicide. Use higher rates of Roundup Transorb HC Liquid Herbicide if perennial weeds are present.

Roundup Transorb HC Liquid Herbicide plus Fieldstar Herbicide

For burndown and residual control of selected annual weeds apply Roundup Transorb HC Liquid Herbicide plus Fieldstar Herbicide as a preplant surface or pre-emergence application before crop emergence.

Roundup Transorb HC Liquid Herbicide plus Prowl Herbicide

For burndown and residual control of selected annual weeds apply Roundup Transorb HC Liquid Herbicide plus Prowl 400 EC herbicide after seeding but before crop emergence.

Roundup Transorb HC Liquid Herbicide plus linuron herbicide

For burndown and residual control of selected annual weeds apply Roundup Transorb HC Liquid Herbicide plus linuron herbicide after seeding but before crop emergence.

Roundup Transorb HC Liquid Herbicide plus Converge Pro Herbicide or Converge 75 WDG Herbicide

Surface Preplant:

CONVERGE 75 WDG Herbicide can be applied to the soil surface up to 14 days prior to planting. CONVERGE 75 WDG Herbicide must be tankmixed with atrazine when applied as a surface preplant application. When weed growth is present at the time of application, Roundup Transorb HC Liquid Herbicide can be added to the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine treatment for burndown control of these weeds. Do not incorporate.

Preemergence:

Converge Pro Herbicide or Converge 75 WDG Herbicide can also be applied after planting to just prior to crop emergence. Atrazine and/or Roundup Transorb HC Liquid Herbicide can be tank mixed with pre-emergent applications of Converge Pro Herbicide or Converge 75 WDG Herbicide .

Apply Converge Pro Herbicide at 165-220 mL per hectare, or Converge 75 WDG Herbicide at 105-140 g per hectare, tankmixed with Roundup Transorb HC Liquid Herbicide at 1.67.L per hectare for burndown control of emerged weeds in all tillage management systems and improved control of established dandelion in zero-tillage management systems. A three-way tankmix of Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine + Roundup Transorb HC Liquid Herbicide can be used to provide residual control of the weeds listed in the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine section.

Roundup Transorb HC Liquid Herbicide plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with Roundup Transorb HC Liquid Herbicide. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

Roundup Transorb HC Liquid Herbicide plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems:

Apply this tankmix in a minimum of 200 L/ha of total volume.

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Lexone is a registered trademark of E.I. duPont de Nemours and Company.

Dual, Magnum and Primextra are registered trademarks of Syngenta group company.

Broadstrike and Fieldstar are trademarks of Dow Agrosiences LLC.

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9.1.3 PRIOR TO PLANTING – TANK MIXES* - CANOLA

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

Roundup Transorb HC Liquid Herbicide plus bromoxynil for preseed/preplant control of annual, perennial weeds and volunteer canola:

Apply Roundup Transorb HC Liquid Herbicide in a tank mix with bromoxynil. This tank-mix will control volunteer canola (all types) in addition to control of emerged weeds listed on this label when applied as directed (refer to Annual Weed Control Section 7.0 and Perennial Weed control Sections 8.0 prior to the planting of canola (all types).

For control of volunteer canola apply bromoxynil at a rate of 350 g/ha (e.g., 1.25 L/ha for herbicides containing 280 g/L bromoxynil, 1.5 L/ha for herbicides containing 235 g/L bromoxynil etc.) tank mixed with Roundup Transorb HC Liquid Herbicide at 0.83 -1.27 L/ha (annual weeds) or 1.67-3.33 L/ha (perennial weeds) prior to the planting of canola.

9.2 POSTHARVEST STUBBLE TREATMENT

This product may be applied in the fall as a postharvest stubble treatment for control of perennial weeds such as quackgrass and Canada thistle. Allow weeds to regrow to the desired stage (20 to 25 centimetres tall for quackgrass and Canada thistle) before application and ensure they have a high proportion of green colouration. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frosts prior to application may decrease control.

9.3 SPOT TREATMENT (IN-CROP)

This product can be applied as an in-crop spot treatment in barley, corn, oats, soybeans, wheat, strawberry, blueberry, forage grasses and legumes including seed production. Applications should be made using the same rates and at the same growth stages as listed in the “**Weed Control**” tables (sections 7.1 and 8.1) or use a 0.67 percent solution for annual weeds and quackgrass and a 1.34 percent solution for other perennial weeds (a 0.67 percent solution equals 0.67 litres of Roundup Transorb HC Liquid Herbicide in 100 litres of spray solution). 0.67 and 1.34 percent solutions should be applied to wet, but not run-off. Applications can be made using a boom sprayer, hose and handgun, or hand sprayer in accordance with instructions in “**Application Equipment**” (section 5.2).

9.3.1 Grazing Restrictions: Applications can be made up to heading of small grains, initial pod set on soy and dry beans, silking of corn and emergence of seed heads. The crop in the treated area will be killed. Take care to avoid drift for the same reason. **DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET.**

ALLOW 3 TO 5 DAYS FOR ROUNDUP TRANSORB HC LIQUID HERBICIDE TO TRANSLOCATE INTO ALL PLANT PARTS BEFORE GRAZING OR HARVESTING TREATED AREAS IN FORAGES.

9.4 SUMMERFALLOW TREATMENT

This product, or labeled tank mixtures, may be applied in summerfallow to control weeds listed on this label. Ensure weeds are at the desired growth stage and actively growing at application for best results. Reduced control may result if weeds are drought stressed. Weeds will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds.

9.5 MINIMUM AND ZERO TILLAGE CROPPING SYSTEMS (ALL FIELD CROPS, INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES, CORN AND POTATOES)

This product may be applied prior to seeding or after seeding, but before crop emergence for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Applications made too far in advance of seeding may allow weeds to emerge between application and crop emergence, as this product does not provide residual weed control.

Minimum and Zero Tillage Tank Mixtures

9.5.1 Roundup Transorb HC Liquid Herbicide plus 2,4-D amine or ester can be applied prior to seeding or after seeding, but before crop emergence **in wheat, winter wheat, barley and rye.** Refer to “**Annual Weed Control with Roundup Transorb HC Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.2 Roundup Transorb HC Liquid Herbicide plus bromoxynil (Pardner) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley and oats. Refer to “**Annual Weed Control with Roundup Transorb HC Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.3 Roundup Transorb HC Liquid Herbicide plus Pursuit® can be applied prior to, or after seeding, but before crop emergence in soybeans. Roundup Transorb HC Liquid Herbicide will control emerged weeds listed on this label when applied as directed (refer to “**Annual and Perennial Weed Control**” section 7.0 and 8.0). Pursuit will control weeds germinating from seed. Add the recommended rates of both products in 100 litres of water per hectare, following the instructions on the Pursuit herbicide label.

ALWAYS REFER TO THE PURSUIT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS. ONLY SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE

PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 120 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE.

Pursuit is a registered trademark of BASF Agrochemical Products B.V. Netherlands.

9.5.4 Roundup Transorb HC Liquid Herbicide plus MCPA can be applied prior to seeding in wheat, barley, rye, oats, corn (field and sweet; MCPA amine only), flax and field peas (MCPA amine only). Refer to “**Annual Weed Control with Roundup Transorb HC Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.5 Roundup Transorb HC Liquid Herbicide plus Buctril M® can be applied prior to seeding in wheat, rye, corn, barley, oats, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, Timothy, Orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow bromegrass, seedling streambank wheatgrass and reed canary grass. Refer to “**Annual Weed Control with Roundup Transorb HC Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.6 Roundup Transorb HC Liquid Herbicide plus MCPA amine can be applied prior to seeding in lentil and chickpea. Refer to “**Annual Weed Control with Roundup Transorb HC Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.7 Roundup Transorb HC Liquid Herbicide plus Express Toss-N-Go Herbicide Or Express Toss-N-Go® Dry Flowable 75% Herbicide in pre-seed situations, wheat and barley may be seeded after a minimum of 24 hours after application. Refer to “**Annual Weed Control with Roundup Transorb HC Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

ALWAYS REFER TO THE EXPRESS® TOSS-N-GO HERBICIDE OR EXPRESS TOSS-N-GO DRY FLOWABLE 75% HERBICIDE LABEL FOR FURTHER INFORMATION ON APPLICATION DIRECTIONS, TANK MIXING, AND USE PRECAUTIONS.

9.5.8 Roundup Transorb HC Liquid Herbicide plus Banvel II can be applied prior to seeding in wheat, barley, rye, oats and field corn only (do not apply prior to seeding sweet corn). Refer to “**Annual Weed Control with Roundup Transorb HC Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.6 FORAGES LEGUMES AND GRASSES

This product may be applied for control of emerged weeds prior to emergence of forage legumes and grasses. If the forages are to be under-seeded with a cover crop, this product must be applied prior to planting the cover crop.

9.7 PASTURE RENOVATION

Use this product to control or suppress existing vegetation for zero-tillage seeding of legumes into established sod for pasture renovation. Delay spraying until weed growth is at least 20 centimetres in height and a maximum number of seedlings or shoots have emerged. Application can be made immediately before, during or after seeding, but before crop emergence.

9.8 FORAGE SEED PRODUCTION

For spot treatment control of perennial weed problems such as quackgrass and Canada thistle in seed fields, apply as directed to vegetation that is at least 20 to 25 centimetres in height but before emergence of seed head. The crop in the treated areas will be killed. Take care to avoid drift outside target areas for the same reason.

9.9 PREHARVEST TREATMENT

CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX AND DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle, Roundup Transorb HC Liquid Herbicide can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed) (including Roundup Ready varieties), flax (including low linolenic acid varieties), lentils, peas, dry beans, soybeans (including Roundup Ready varieties) and forages. DO NOT apply to crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations. EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE. Preharvest treatment to Roundup Ready varieties of canola and soybean provides weed control only.

Roundup Transorb HC Liquid Herbicide should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For forage crops, apply this product at 1.67 to 3.33 litres per hectare 3 to 7 days prior to the last cut before rotation or forage renovation.

Consult the table “**Guidelines for Timing of Preharvest Applications**” (section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results, quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 to 14 days (or 3 to 7 days for forage applications) before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

DO NOT APPLY BY AIR.

9.9.1 GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including Roundup Ready varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (INCLUDING LOW LINOLENIC ACID VARIETIES)	Less than 30	Majority (75% - 80%) of bolls are brown.
PEAS	Less than 30	Majority (75% - 80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80% - 90% leaf drop (original leaves).
SOYBEANS (including Roundup Ready varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80% - 90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: (PREHARVEST TREATMENT OF CHICKPEA, DRIED LUPIN AND DRIED FAVA BEAN).

The DIRECTIONS FOR USE for this product described below were developed by persons other than Monsanto Canada and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Monsanto Canada itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop listed below.

Accordingly, the User assumes all risks related to performance and crop tolerance liability arising, and agrees to hold Monsanto Canada harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

DIRECTIONS FOR USE

Preharvest Treatment of Chickpea, Dried Lupin and Dried Fava Bean

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle and harvest management, Roundup Transorb HC Liquid Herbicide can be applied prior to harvest of chickpea, dried lupin and dried fava bean. DO NOT apply to crops if grown for seed production.

Roundup Transorb HC Liquid Herbicide should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For further information see guidelines above. The Pre-harvest interval is 7 days.

GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
Chickpea	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves)
Dried Lupin		
Dried Fava Bean		

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS

9.9.2 PREHARVEST AERIAL APPLICATION

Refer to the general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION PRAIRIE PROVINCES ONLY (including PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators and aerial application services approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patterning) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 – 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a ROUNDUP herbicide aerial application training course provided by Monsanto Canada Inc.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the *direct daily supervision* of a qualified pilot.

Refer to general directions and precautions concerning aerial application, sections 5.2, and 5.3, Buffer Zones.

DIRECTIONS FOR USE

Roundup Transorb HC Liquid Herbicide may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. Roundup Transorb HC Liquid Herbicide can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, dry beans and soybeans. Do not use on forages. **DO NOT apply to any crops if grown for seed production.**

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

Roundup Transorb HC Liquid Herbicide should be applied at 1.67 L/ha in 20 – 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table “**Guidelines for Timing of Preharvest Applications**” (Section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 – 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

9.10 TREE PLANTINGS

SHELTERBELTS AND NURSERY STOCK (WOODY ORNAMENTALS)

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established nurseries or shelterbelts of the following species:

DECIDUOUS

Ash

Fraxinus spp.

Caragana

CONIFEROUS

Fir

Abies spp.

Juniper

Caragana spp.
Cherry
Prunus spp.
Elm
Ulmus spp.
Lilac
Syringa spp.
Maple
Acer spp.
Mountain Ash
Sorbus spp.
Poplar
Populus spp.
Russian Olive
Elaeagnus spp.
Willow
Salix spp.

Juniperus spp.
Pine
Pinus spp.
Spruce
Picea spp.
Yew
Taxus spp.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

9.11 TREE, VINE, BERRY AND OTHER CROPS

This product is recommended for annual and perennial weed control in established vineyards or orchards, in blueberry, cranberry and strawberry, or for site preparation prior to transplanting tree and vine crops. Applications may be made with boom equipment, shielded sprayers, hand held and high volume orchard guns, or with wiper applicator equipment (orchards, vineyards, cranberry and strawberry only). See “**Mixing and Application Equipment Information**” (section 5.2) and the following table for specific information on the use of equipment.

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual or pre-emergent weed control. For subsequent weed control, follow a program using residual herbicides or use repeated applications of this product. Do not apply more than 23 litres of this product per hectare per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES, OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

WEED CONTROL IN TREE, VINE, BERRY AND OTHER CROPS

CROP	RATE (L/ha)	PRE-HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Apples, Apricot, Cherry (sweet/sour), Peaches, Nectarines, Pears, Plums	1.5 - 8	30	3	Annual and perennial weeds	
Apples, Grapes	Tank Mix 1.5 – 8 + simazine 2.0 – 4.5 kg ai/ha	-	1	Annual and perennial weeds	<ul style="list-style-type: none"> • Will provide season-long preemergent control. • Do not apply to coarse, sandy or gravelly soil. • Use according to the more restrictive label direction for each product in the mix. • DO NOT apply to orchards or vineyards that have been established less than 1 or 3 years, respectively. • Simazine rate is equivalent to 2.25 – 5.0 kg/ha Princep® Nine-T®, or 4.0 – 9.0 kg/ha Simadex®
Grapes	1.5 - 8	14	3	Annual and perennial weeds.	<ul style="list-style-type: none"> • Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. • Suckering should be conducted within 2

CROP	RATE (L/ha)	PRE- HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
					weeks prior to application. <ul style="list-style-type: none"> Do not apply to vines which have been established less than 3 years.
Highbush (cultivated) blueberry	1.87 – 3.73	30	1	Quackgrass	<ul style="list-style-type: none"> Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	0.67 – 1.34% solution (spot application)	Apply in non-bearing year only	1	Woody brush (section 6.3)	<ul style="list-style-type: none"> Apply as a directed spray in mid-summer of the vegetative (non-bearing) year. See section 9.3 for instructions on spot treatments.
Filberts, Hazelnut (established plantations)	1.5 – 2.33	14	-	Annual Weeds	<ul style="list-style-type: none"> Use as a directed spray, with no more than 275 kPa pressure.
Walnut, Chestnut, Japanese Heartnut	1.5 - 8	-	2	Annual and perennial weeds	<ul style="list-style-type: none"> Apply late spring and fall, postharvest but prior to a damaging frost. Apply in 200 – 300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 1.34% wiper solution (see “Wiper Applications” section 9.12).
Cranberry	13.4% solution (0.62 L Roundup Transorb HC Liquid Herbicide + 4L water)	30	1	Annual and perennial weeds	<ul style="list-style-type: none"> Apply using wick or wiper applicators (section 9.12).
Strawberry	0.67 – 1.34% solution (spot	30	1	Emerged perennial weeds	<ul style="list-style-type: none"> Apply when weeds are at a susceptible

CROP	RATE (L/ha)	PRE-HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
	application) 22% solution (wiper application)				growth stage (see sections 8.1 and 8.2). • See section 9.3 for instructions on spot treatments. • See section 9.12 for instructions on wiper applications.
Sugar Beets	0.67 – 1.34% solution (spot application)	Treated crop MUST NOT be harvested	1	Dodder species	• Apply when dodder is vigorously growing but before flowering. • See section 9.3 for instructions on spot treatments.
Asparagus	0.83 – 1.67	7	1	Fall seeded ryegrass	• Apply in spring before emergence of crop shoots.

Princep and Nine-T are registered trademarks of Syngenta group company.
Simadex is a registered trademark of Bayer.

SHORT ROTATION INTENSIVE CULTURE (SRIC) POPLAR (*Populus spp*)

DO NOT APPLY BY AIR.

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established crops of short rotation intensive culture (SRIC) Poplar species (*Populus spp.*)

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, OR OTHER PARTS OF TREES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

Roundup Transorb HC Liquid Herbicide may be applied prior to planting or as a post directed spray in established short rotation intensive culture crops. Apply Roundup

Transorb HC Liquid Herbicide up to 8 L/ha in 50 – 100 liters or 150 – 300 L/h for quackgrass control by ground application only. Applications can be made 1-3 times per year during establishment however, not to exceed the limit of 8 L/ha per year. Shielded sprayers must be utilized when applying post directed spray solutions. Allow a 6-8 week interval between spray applications. Apply to actively growing weeds.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR INDICATED SPECIAL USE APPLICATIONS: (NORTH AMERICAN GINSENG).

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Monsanto Canada and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Monsanto Canada itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop listed below.

Accordingly, the User assumes all risks related to performance and crop tolerance arising, and agrees to hold Monsanto Canada harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

DIRECTIONS FOR USE

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS.

NORTH AMERICAN GINSENG

New Gardens (British Columbia only): Apply this product in the fall after seeding but before freeze-up in new gardens only to control volunteer cereals. Apply when weeds are at the growth stages listed on the product label. Use a single application of 1.67 litres per hectare in 50 to 100 litres water per hectare. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

Existing/Established Gardens: Apply this product in the spring before the crop has emerged above the soil. Apply when weeds are at the growth stages described in the product label. A maximum of two 1.67 litres per hectare applications in 50 to 100 litres water per hectare may be made in a season. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

9.12 SELECTIVE EQUIPMENT

WIPER APPLICATORS

This product may be applied with a wiper applicator, after dilution and thorough mixing with water, to listed weeds in soy and dry beans, grapes, orchards, cranberries, lowbush blueberries and strawberries. Applications must be made before initial pod set in soy and dry beans. (It may also be used in any industrial, tree planting and non-crop site specified on this label. See sections 9.10 and 10.1).

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution. Wiper applicators include either roller or wick devices which physically wipe appropriate concentrations or amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Performance may be improved by reducing speed in areas of heavy weed infestations to insure adequate wiper saturation. Best results may be obtained if 2 applications are made in opposite directions.

AVOID CONTACT WITH DESIRABLE VEGETATION. Contact of the herbicide solution with desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that wiper contact point is at least 5 centimetres above the desirable vegetation. Droplets or foam of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications should be made when the weeds are a minimum of 15 centimetres above the desirable vegetation. Best results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. See the “**Weed Control**” tables (sections 7.1 and 8.1) for recommended stage of growth for specific weeds.

NOTES

- **Maintain equipment in good operating condition. Avoid leakage or dripping onto desirable vegetation.**
- **Adjust height of applicator to insure proper contact with weeds.**
- **Keep wiping surfaces clean.**
- **Maintain recommended roller RPM on roller applicators while in use.**
- **Keep wiper material at proper degree of saturation with herbicide solution.**
- **DO NOT use wiper equipment when weeds are wet.**
- **DO NOT operate equipment at ground speeds below 4 and greater than 10 kilometres per hour. Weed control may be affected by speed of application**

equipment. As weed density increases, reduce equipment ground speed to insure good coverage of weeds.

- **Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.**
- **Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended herbicide solution directly to the weed.**
- **Care must be taken with all types of wipers to insure that the absorbent material does not become over-saturated, causing the herbicide to drip onto desirable vegetation.**
- **With all equipment, drain and clean wiper parts immediately after using this product, by thoroughly flushing with water.**

For Roller Applicators – Mix 0.33 to 0.67 litres of this product in 10 litres water to prepare a 3 to 7 percent solution. Roller speed should be maintained at 50 to 150 RPM.

For Wick or other Wiper Applicators – Mix 0.57 litres of this product in 2 litres of water to prepare a 22 percent solution.

10.0 NON-CROPLAND USES

INDUSTRIAL, RIGHTS-OF-WAY, RECREATIONAL, AND PUBLIC AREAS.

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

This product can be used to control annual and perennial weeds and woody brush and trees listed on this label in non-crop areas such as railroad, pipeline, highway, power and telephone rights-of-way, petroleum tank farms and pumping installations; roadsides; storage areas; lumberyards; fence rows; industrial plant sites; parking areas; school yards, parks, golf courses, other public areas; airports and similar industrial or non-crop areas.

NOTE: For all industrial, rights-of-way, recreational and public areas, repeat treatments may be necessary to control regeneration or new growth.

When applied as recommended under the conditions described, this product will control weeds in non-cropland areas as listed in the following table.

**10.1 WEED CONTROL IN NON-CROPLAND AREAS WITH ROUNDUP
TRANSORB HC LIQUID HERBICIDE**

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
Annual grasses and broadleaves	1.5–2.33	50-100	0.67	<ul style="list-style-type: none"> Actively growing weeds.
Perennial Weeds				<ul style="list-style-type: none"> Actively growing weeds. Add 0.5% v/v of a recommended surfactant when using water volumes greater than 150 L (see section 8.2.2). Higher rate for long term control and for heavy infestations. See section 10.2.3 for instructions on purple loosestrife applications. Summer through fall is optimum.
Quackgrass	1.67 3.17-4.67	50-300 50-300	0.67 1.34	
Canada Thistle (bud stage)	3.17-4.67	100-300	1.34	
Purple Loosestrife	4	300-600	0.67-1.34 (or 22% for wiper application)	
Other Perennials	4.67-8	100-300	1.34	
Brush and Trees				
Birch, Cherry, Poplar, Western Snowberry, Willow	2-4	100-300	0.67-1.34	<ul style="list-style-type: none"> Summer through early fall (see section 10.2).
Maple, Raspberry/ Salmonberry, Alder	4	100-300	1.34	<ul style="list-style-type: none"> Late summer through fall. Fall is optimum.
Turf Renovation				
Annual and perennial weeds	1.67-8	100-300	0.67-1.34	<ul style="list-style-type: none"> Use higher end of the rate range for perennials.
Roadside Vegetation (1-2m wide along shoulders) Annual weeds (refer to tank mix sections on product labels for specific weeds controlled)	1) 0.5 – 0.67 + 1.25 – 2.5 L Vanquish or 2) 0.5 – 0.67 + 0.30 L Vanquish + 1.2 L 2,4-D amine 500	25-150	-	<ul style="list-style-type: none"> Refer to “Annual Weed Control” table (section 7.1) for appropriate product rate for specific weeds. For 2,4-D amine formulations with a different guarantee, adjust the rate accordingly.

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
				<ul style="list-style-type: none"> • No application to standing water.
Residual Control Annual and perennial weeds (The simazine component of this tank mixture will provide season long control of most germinating broadleaf weeds and grasses. It may also provide postemergent activity on certain annual weeds).	1.67 – 8 + 4.0 -9.0 L Simadex Flowable	200-400	-	<ul style="list-style-type: none"> • Do not apply to coarse, sandy or gravelly soil. One application per year. • Use according to the most restrictive label directions for each product in the mixture. • For other simazine formulations registered for industrial/ non-cropland areas, use equivalent rates; i.e., 2.0 – 4.5 kg simazine/ha.

* For more information on rates, water volumes and application, refer to “**Annual and Perennial Weed Control**” (sections 7.1 and 8.1, respectively).

Vanquish is a registered trademark of Syngenta group company.
 Simadex is a registered trademark of Bayer.

10.2 APPLICATION INFORMATION FOR NON-CROPLAND USES

FOLIAR APPLICATIONS

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30 to 45 days for symptoms to develop on target species. Late season application may be made to species that have some autumn colors provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURF GRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

This product does not provide residual weed control. For subsequent weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

10.2.1 GROUND APPLICATIONS:

For all non-cropland uses

For woody brush and trees, apply 2 to 4 litres of this product per hectare. Use ground boom or boomless, or mist blower equipment, or apply as a 0.67 to 1.34 percent solution using hand held, high volume equipment. Apply as directed in the recommended volume of clean water to foliage of actively growing vegetation. Use the 4 litres per hectare rate for Maple, Alder and Willow* species, as well as for hard to control perennial weed species. (*suppression only).

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages.

10.2.2 PURPLE LOOSESTRIFE CONTROL

- **DO NOT TREAT PLANTS OVER OPEN WATER.** Roundup Transorb HC Liquid Herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using hand held equipment, spray-to-wet.
- For wiper applications see section 9.12.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

10.3 SELECTIVE APPLICATION FOR ALL NON-CROPLAND USES

Selective equipment such as WIPER and ROLLER applicators can be used to control emerged weeds in non-crop areas and tree plantings. See “**Selective Equipment**” (section 9.12) for more information.

10.4 TURF GRASS

When applied as directed, under conditions described, this product controls most existing vegetation. Apply this product at rates specified in “**Weed Control in Non-Cropland Areas**” (section 10.1).

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth given in “**Weeds Controlled**” (sections 7.1 and 8.1, respectively). Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray and proper translocation into underground plant parts. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

For maximum control of existing vegetation, delay establishment to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. Desirable turfgrass may be established following the above procedures.

10.5 INJECTION APPLICATIONS -- FOR ALL NON-CROPLAND USES

Woody vegetation may be controlled by injection application of this product. Apply using suitable equipment, which must penetrate into living tissue, at a rate of at least 0.33 millilitres (either undiluted or 1:1 with water) per 5 centimetres tree diameter at breast height (DBH). The cuts should be spaced evenly around the tree and below all major branches. Application may be made at any time of year, except when cold temperatures prevent adequate penetration of injection equipment, or in the spring during periods of heavy sap flow. Control of tree species with tree diameters greater than 20 centimetres may not be acceptable at this rate.

Total control may not be evident for 1 to 2 years following treatment.

A partial list of species controlled includes:

Alder

Alnus spp.

Birch

Betula spp.

Hemlock

Tsuga spp.

Maple*

Acer spp.

Cedar*Thuja spp.***Cherry***Prunus spp.***Douglas Fir***Pseudotsuga spp.***Pine***Pinus spp.***Poplar***Populus spp.***Willow***Salix spp.*

* This treatment may only provide suppression of Bigleaf Maple. Late fall applications will provide optimum suppression of Bigleaf Maple.

10.6 CUT STUMP APPLICATION

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Because the treatment uses a concentrated solution, application must be made using low-pressure equipment e.g., squirt bottle or similar device. This product must be applied immediately to the surface of the freshly cut stump i.e., within 5 minutes for optimum control at the prescribed rates. Only the cambial tissues of the cut surface should be treated. Apply the herbicide solution at a rate equivalent to at least 0.33 millilitres product for every 5 centimetres DBH. Do not cover the remaining area nor any exposed roots, as this product does not penetrate bark well. This treatment may be used at any time of year, except during periods of heavy sap flow or when low temperatures prevent solution application due to freezing. A water soluble colourant may be added to the solution as a means of indicating which surfaces have been treated. Total control may not be evident until 1 to 2 years after treatment.

See “**Injection Applications**” (section 10.5) of this label for a partial list of species controlled.

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Monsanto Canada
Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier

Roundup Transorb® HC Liquid Herbicide

1.1.1. **Chemical name**
Not applicable.

1.1.2. **Synonyms**
None.

1.1.3. **PCP Reg. No.**
28198

1.2. **Product use**
Herbicide

1.3. **Company**
Monsanto Canada, 900 - One Research Road, Winnipeg, MB, R3T 6E3
Telephone: 204-985-1000 or 800-667-4944, **Fax:** 204-488-9599
E-mail: safety.datasheet@monsanto.com

1.4. **Emergency numbers**
FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT Call
CANUTEC - Day or Night: 613-996-6666 (collect calls accepted) or MONSANTO: 314-694-4000
(collect calls accepted).
FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

2. HAZARDS IDENTIFICATION

2.1. **Classification**
Classification according to the Hazardous Products Regulations, 2015 Workplace Hazardous Materials
Information System (WHMIS 2015)
Acute toxicity, inhalation - Category 4

2.2. **Label elements**
Hazard pictogram/pictograms



Signal word
WARNING!

Hazard statement/statements

H332	Harmful if inhaled.
Precautionary statement/statements	
P261	Avoid breathing mist, vapours or spray.
P271	Use only outdoors or in a well-ventilated area.
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.

2.3. Other hazards
Not applicable.

2.4. Appearance and odour (colour/form/odour)
Green /Liquid / Odourless

Refer to section 11 for toxicological and section 12 for environmental information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance: Not applicable.

3.2. Mixture: Yes.

Composition/information on ingredients

Components	CAS No.	Concentration
Potassium salt of glyphosate	70901-12-1	48.8 %
Surfactant and minor formulating ingredients		51.2 %

The specific chemical identity and/or concentration range is being withheld because it is trade secret information of Monsanto Company.

Active ingredient

Potassium salt of N-(phosphonomethyl)glycine; {Potassium salt of glyphosate}

4. FIRST AID MEASURES

Use personal protection recommended in section 8.

4.1. Description of first aid measures

4.1.1. Eye contact

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

4.1.2. Skin contact

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

4.1.3. Inhalation

If inhaled, move person to fresh air. If person is not breathing, call emergency number or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

4.1.4. Ingestion

Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

4.2.1. Potential health effects

Likely routes of exposure: Skin contact, eye contact, inhalation

Eye contact, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.

Skin contact, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.

Inhalation, short term: Harmful by inhalation.

Single ingestion: Not expected to produce significant adverse effects when recommended use instructions are followed.

4.2.2. Medical conditions aggravated by exposure:

None.

4.3. Indication of any immediate medical attention and special treatment needed

4.3.1. Advice to doctors

This product is not an inhibitor of cholinesterase.

4.3.2. Antidote

Treatment with atropine and oximes is not indicated.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

5.1.1. Recommended: Water, Foam, Dry chemical, Carbon dioxide (CO₂)

5.2. Special hazards

5.2.1. Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination. Environmental precautions: see section 6.

5.2.2. Hazardous products of combustion

Carbon monoxide (CO), Phosphorus oxides (P_xO_y), Nitrogen oxides (NO_x)

5.3. Advice for firefighters

Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

5.4. Flash point

Does not flash.

6. ACCIDENTAL RELEASE MEASURES

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

6.1. Personal precautions

Keep all non-essential people away from affected area.

6.2. Environmental precautions

SMALL QUANTITIES: Low environmental hazard. **LARGE QUANTITIES:** Minimise spread. Keep out of drains, sewers, ditches and water ways.

6.3. Methods for cleaning up

Absorb in earth, sand or absorbent material. Dig up heavily contaminated soil. Collect in containers for disposal. Refer to section 7 for types of containers. Flush residues with small quantities of water. Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Good industrial practice in housekeeping and personal hygiene should be followed. Avoid breathing vapour or mist. Avoid contact with eyes, skin and clothing. When using do not eat, drink or smoke. Wash hands thoroughly after handling or contact. Wash contaminated clothing before re-use. Thoroughly clean equipment after use. Do not contaminate drains, sewers and water ways when disposing of equipment rinse water. Refer to section 13 of the safety data sheet for disposal of rinse water.

Emptied containers retain vapour and product residue. FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

7.2. Conditions for safe storage, including any incompatibilities

Compatible materials for storage: stainless steel, Aluminium, fibreglass, plastic, glass lining

Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.

Keep out of reach of children. Keep away from food, drink and animal feed. Keep container tightly closed in a cool, well-ventilated place. Keep only in the original container. Partial crystallization may occur on prolonged storage below the minimum storage temperature. If frozen, place in warm room and shake frequently to put back into solution.

7.3. Specific end use(s)

Pesticide: Read and follow label instructions

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Airborne exposure limits

Components	Exposure Guidelines
Potassium salt of glyphosate	No specific occupational exposure limit has been established.
Surfactant and minor formulating ingredients	No specific occupational exposure limit has been established.

8.2. Exposure controls

Engineering controls

Provide local exhaust ventilation.

Eye protection:

If there is potential for contact: Wear chemical goggles.

Skin protection:

Wear chemical resistant gloves.

Applicators and other handlers must wear: Wear long sleeved shirt, long pants and shoes with socks.

If there is potential for contact: Wear face shield. Wear chemical resistant clothing/footwear.

Respiratory protection:

If airborne exposure is excessive: Wear respirator. Full facepiece/hood/helmet respirator replaces need for chemical goggles.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

9.1 Information on basic physical and chemical properties

Colour/colour range:	Green
Form:	Liquid
Odour:	Odourless
Odour threshold:	No data.
Physical form changes (melting, boiling, etc.):	
Freezing point:	No data.
Boiling point:	No data.
Flash point:	Does not flash.
Explosive properties:	No data.
Auto ignition temperature:	No data.
Self-accelerating decomposition temperature (SADT):	No data.
Oxidizing properties:	No data.
Specific gravity:	1.35 @ 20 °C / 15.6 °C
Vapour pressure:	No significant volatility; aqueous solution.
Vapour density:	Not applicable.
Dynamic viscosity:	No data.
Kinematic viscosity:	No data.
Density:	No data.
Solubility:	Completely miscible.
pH:	4.5 - 4.9 67.7 g/l
Partition coefficient:	log Pow: -3.2 @ 25 °C (Glyphosate)

9.2 Other information

Evaporation rate:	No data.
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10. STABILITY AND REACTIVITY

10.1. Reactivity

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

10.2. Chemical stability

Stable under normal conditions of handling and storage.

10.3. Possibility of hazardous reactions

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

10.4. Conditions to avoid

None

10.5. Incompatible materials

Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.

Compatible materials for storage: see section 7.2.

10.6. Hazardous decomposition products

Hazardous products of combustion: see section 5.

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

11.1. Information on toxicological effects

Acute oral toxicity: Based on available data classification criteria are not met.

Acute dermal toxicity: Based on available data classification criteria are not met.

Acute inhalation toxicity: Category 4

Skin corrosion/irritation: Based on available data classification criteria are not met.

Eye corrosion/irritation: Based on available data classification criteria are not met.

Skin sensitization: Based on available data classification criteria are not met.

Respiratory sensitization: Based on available data classification criteria are not met.

Mutagenicity: Based on available data classification criteria are not met.

Carcinogenicity: Based on available data classification criteria are not met.

Reproductive/Developmental Toxicity: Based on available data classification criteria are not met.

Specific Target Organ Toxicity - Single Exposure: Based on available data classification criteria are not met.

Specific Target Organ Toxicity - Repeated Exposure: Based on available data classification criteria are not met.

Aspiration hazard: Based on available data classification criteria are not met.

Most important symptoms and effects, both acute and delayed

Potential health effects

Likely routes of exposure: Skin contact, eye contact, inhalation

Eye contact, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.

Skin contact, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.

Inhalation, short term: Harmful by inhalation.

Single ingestion: Not expected to produce significant adverse effects when recommended use instructions are followed.

Medical conditions aggravated by exposure: None.

If available, data obtained on similar products and/or on components are summarized below.

Similar formulation

Acute oral toxicity

Rat, LD50: > 5,000 mg/kg body weight

Practically non-toxic.

Acute dermal toxicity

Rat, LD50: > 5,000 mg/kg body weight

Practically non-toxic.

Skin irritation

Rabbit, 3 animals, OECD 404 test:

Redness, individual EU scores: 2.00; 1.67; 2.00

Swelling, individual EU scores: 0.00; 0.33; 0.33

Days to heal: 14

Moderate irritation.

Eye irritation

Rabbit, 3 animals, OECD 405 test:

Conjunctival redness, individual EU scores: 1.00; 1.33; 1.33

Conjunctival swelling, individual EU scores: 1.00; 1.33; 1.00

Corneal opacity, individual EU scores: 0.00; 1.00; 0.00

Iris lesions, individual EU scores: 0.00; 0.33; 0.00

Days to heal: 10

Slightly irritating to eyes but not sufficient for classification.

Moderate irritation.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: > 1.20 mg/L

Slightly toxic. No mortality. For purposes of the inhalation test, product was artificially aerosolized.

Since this material will not become aerosolized to a hazardous concentration during transport, it is classified as non-hazardous under the transportation regulations in accordance with 2.6.2.2.4.7(b) and (c) of the UN Recommendations on the Transport of Dangerous Goods.

Skin sensitization

Guinea pig, 3-induction Buehler test:

Positive incidence: 0 %

N-(phosphonomethyl)glycine; {glyphosate acid}

Genotoxicity

Not genotoxic.

Carcinogenicity

Not carcinogenic in rats or mice.

Reproductive/Developmental Toxicity

Developmental effects in rats and rabbits only in the presence of significant maternal toxicity.

Reproductive effects in rats only in the presence of significant maternal toxicity.

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

If available, data obtained on similar products and/or on components are summarized below.

12.1 Toxicity

No data.

12.2 Persistence and degradability

No data.

12.3 Bioaccumulative potential

Refer to section 9 for partition coefficient data.

12.4 Mobility in soil

No data.

12.5 Results of PBT and vPvB assessment

No data.

12.6 Other adverse effects

Toxic to aquatic organisms.

12.7 Additional information

If available, data obtained on similar products and/or on components are summarized below.

Similar formulation

Aquatic toxicity, fish

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, semi-static, LC50: 3.13 mg/L

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 72 hours, static, EbC50 (biomass): 0.124 mg/L

Arthropod toxicity

Honey bee (*Apis mellifera*):

Contact, 48 hours, LD50: > 250 µg/bee

Honey bee (*Apis mellifera*):

Oral, 48 hours, LD50: > 238.8 µg/bee

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: > 10,000 mg/kg dry soil

Soil organism toxicity, microorganisms

Nitrogen and carbon transformation test:

40 L/ha, 28 days: Less than 25% effect on nitrogen or carbon transformation processes in soil.

Similar formulation

N-(phosphonomethyl)glycine; {glyphosate acid}

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Acute oral toxicity, single dose, LD50: > 3,851 mg/kg body weight

Bioaccumulation

Bluegill sunfish (*Lepomis macrochirus*):

Whole fish: BCF: < 1

No significant bioaccumulation is expected.

Dissipation

Soil, field:

Half life: 2 - 174 days

Koc: 884 - 60,000 L/kg

Adsorbs strongly to soil.

Water, aerobic:

Half life: < 7 days

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

13.1.1. Product

Keep out of drains, sewers, ditches and water ways. Recycle if appropriate facilities/equipment available. Burn in proper incinerator. Follow all local/regional/national/international regulations.

13.1.2. Container

See the individual container label for disposal information. Emptied containers retain vapour and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Empty packaging completely. Triple or pressure rinse empty containers. Do NOT contaminate water when disposing of rinse waters. Ensure packaging cannot be reused. Do NOT re-use containers. Store for collection by approved waste disposal service. Recycle if appropriate facilities/equipment available. Follow all local/regional/national/international regulations.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

Transport of Dangerous Goods Regulations (TDG)

- 14.1 UN No.: Not applicable.
- 14.2 **Proper Shipping Name (Technical Name if required): Not regulated for domestic ground transportation.**
- 14.3 **Transport hazard class: Not applicable.**
- 14.4 **Packing Group:** Not applicable.
- 14.5 **Environmental hazards: Not applicable.**
- 14.6 **Special precautions for the user:** Not applicable.

IMO

- 14.1 UN No.: Not applicable.
- 14.2 **Proper Shipping Name (Technical Name if required): Not regulated for transport under IMO Regulations.**
- 14.3 **Transport hazard class: Not applicable.**
- 14.4 **Packing Group:** Not applicable.
- 14.5 **Environmental hazards: Not applicable.**
- 14.6 **Special precautions for the user:** Not applicable.
- 14.7 **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:** Not applicable.

IATA/ICAO

- 14.1 UN No.: Not applicable.
- 14.2 **Proper Shipping Name (Technical Name if required): Not regulated for transport under IATA/ICAO Regulations.**
- 14.3 **Transport hazard class: Not applicable.**
- 14.4 **Packing Group:** Not applicable.
- 14.5 **Environmental hazards: Not applicable.**
- 14.6 **Special precautions for the user:** Not applicable.

15. REGULATORY INFORMATION

15.1. Pest Management Regulatory Agency, Pest Control Products Act [PMRA PCPA]

PCPA registered.

Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

This chemical is a pest control product regulated by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act. These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. The following is the hazard information required on the pest control product label:

CAUTION!
POISON
HARMFUL IF SWALLOWED
HARMFUL IF INHALED
CAUSES EYE IRRITATION
CAUSES SKIN IRRITATION

There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label.

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

In this document the British spelling was applied.

|| Significant changes versus previous edition.

	Health	Fire	Reactivity	Additional Markings/Personal Protective Equipment
NFPA	2	1	1	

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), STOT SE (Specific Target Organ Toxicity, Single Exposure), STOT RE (Specific Target Organ Toxicity, Repeated Exposure), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE Pest Management Regulatory (PMRA)- APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by product labeling and provincial legislation, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the PMRA-approved label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, MONSANTO Company or any of its subsidiaries makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will MONSANTO Company or any of its subsidiaries be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR

IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY
OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE
PRODUCT TO WHICH INFORMATION REFERS.

2016-3813
2017-03-06

GROUP	9	HERBICIDE
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Roundup WeatherMAX[®] With Transorb 2 Technology Liquid Herbicide

SOLUTION

AGRICULTURAL and INDUSTRIAL

CAUTION



POISON

WARNING - EYE AND SKIN IRRITANT

REGISTRATION NO. 27487 PEST CONTROL PRODUCTS ACT

GUARANTEE: Glyphosate, 540 grams acid equivalent per litre, present as potassium salt.

Water Soluble Herbicide for non-selective weed control

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING.

NET CONTENTS: 6.7 LITRES to Bulk

**MONSANTO CANADA INC.
900 – One Research Road
Winnipeg, Manitoba R3T 6E3
1-800-667-4944**

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED.

HARMFUL IF INHALED.

CAUSES EYE AND SKIN IRRITATION.

Avoid contact with eyes, skin or clothing.

Avoid inhaling spray mist.

Wear a long-sleeved shirt and long pants during mixing, loading, application, clean-up and repair. In addition, wear goggles or a face shield and chemical-resistant gloves during mixing and loading, clean-up and repair.

Do not enter treated field within 12 hours of application.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at: www.croplife.ca.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice.

Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically. This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target plants. Avoid direct applications to any body of water. Do not contaminate water by disposal of waste or cleaning of equipment. Observe buffer zones specified under “**Directions for Use**” (i.e. refer to booklet).

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

In case of an emergency involving this product, call Monsanto collect, day or night:

Accident/Spills/Medical Emergency (314) 694-4000

Or1-800-332-3111

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

For additional information on this or other Monsanto agricultural products, call the Monsanto Technical Support Line at: 1-800-667-4944.

STORAGE

Avoid contamination of seed, feed, and foodstuffs.
Soak up small amounts of spill with absorbent clays.

DISPOSAL AND DECONTAMINATION

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer and the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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GROUP

9

HERBICIDE

Roundup WeatherMAX[®] With Transorb 2 Technology Liquid Herbicide

SOLUTION

AGRICULTURAL and INDUSTRIAL

CAUTION



POISON

WARNING - EYE AND SKIN IRRITANT

REGISTRATION NO. 27487 PEST CONTROL PRODUCTS ACT

GUARANTEE: Glyphosate, 540 grams acid equivalent per litre, present as potassium salt.

Water Soluble Herbicide for non-selective weed control

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING.

NET CONTENTS: 6.7 LITRES to Bulk

**MONSANTO CANADA INC.
900 – One Research Road
Winnipeg, Manitoba R3T 6E3
1-800-667-4944**

2016

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Roundup WeatherMAX[®] with Transorb 2 Technology Liquid Herbicide

1.0 PRODUCT DESCRIPTION

Water soluble herbicide for non-selective weed control in CROPLAND SYSTEMS AND IN NON-CROPLAND AREAS.

CROPLAND USES INCLUDE:

In cropping systems before planting of all crops; in minimum tillage systems; postemergent in TruFlex[™] Roundup Ready[®] canola, Roundup Ready[®] 2 Yield soybeans, Roundup Ready[®] 2 Xtend[™] soybeans, Roundup Ready[®] canola, soybean, corn and sugar beet; preharvest applications in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), peas, lentils, dry beans, soybeans, chickpeas, dried lupins, dried fava beans, canary seed and forages; in pasture renovation; in forage, legume and grass establishments; in tree crops including apple, pear, cherry, plum, peach, apricot, filbert, hazelnut, walnut, chestnut, Japanese heartnut; in grapes, cranberries, blueberries and strawberry; in sugar beets; in asparagus; in North American ginseng; in tree plantings; and grasses for seed production.

NON-CROPLAND USES INCLUDE:

Industrial; recreational, rights-of-way, and public areas; turf grass renovation.

Not for relabelling or repackaging.

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2.0 EMERGENCY NUMBERS

In case of an emergency involving this product, call Monsanto collect, day or night:

Accident/Spills/Medical Emergency (314) 694-4000
Or1-800-332-3111

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

2.1 INFORMATION

For additional information on this or other Monsanto agricultural products, call the Monsanto Technical Support Line at: 1-800-667-4944.

3.0 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED.

HARMFUL IF INHALED.

CAUSES EYE AND SKIN IRRITATION.

Avoid contact with eyes, skin or clothing.

Avoid inhaling spray mist.

Wear a long-sleeved shirt and long pants during mixing, loading, application, clean-up and repair. In addition, wear goggles or a face shield and chemical-resistant gloves during mixing and loading, clean-up and repair.

Do not enter treated field within 12 hours of application.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

3.1 FIRST AID

IF IN EYES, hold eye open and rinse slowly and gently with water for 15-20 minutes.

Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

Call a poison control centre or doctor for treatment advice.

IF ON SKIN OR CLOTHING, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF SWALLOWED, call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF INHALED, move the person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

3.2 TOXICOLOGICAL INFORMATION

Treat symptomatically. This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia.

3.3 ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target plants. Avoid direct applications to any body of water. Do not contaminate water by disposal of waste or cleaning of equipment. Observe buffer zones specified under “**Directions for Use**”.

3.4 PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder’s torch, lighted cigarette or other ignition source.

3.5 STORAGE

Avoid contamination of seed, feed, and foodstuffs.
Soak up small amounts of spill with absorbent clays.

3.6 DISPOSAL AND DECONTAMINATION

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer and the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

DIRECTIONS FOR USE

4.0 GENERAL INFORMATION

Do not apply this product using aerial spray equipment except under conditions as specified within this label.

Observe buffer zones specified in section 5.3.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide, a water soluble liquid, mixes readily with water for application as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

This herbicide moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Delay application until vegetation has emerged to the stages described for control of such vegetation under the “**Annual and Perennial Weed Control**” (section 7.0 and 8.0) to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per hectare within the recommended range when weed growth is heavy or dense, or weeds are growing in an undisturbed (non-cultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This product does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Rainfall occurring within 60 minutes of treatment may result in reduced weed control. Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of run-off.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide and other Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and

timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Monsanto Canada at 1-800-667-4944 or at www.Monsanto.ca

5.0 MIXING AND APPLICATION

5.1 PRECAUTIONS

ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

DO NOT USE IN GREENHOUSES. REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

Clean sprayers and parts immediately after using this product by thoroughly flushing with water. Do not contaminate water sources by disposal of wastes or cleaning of equipment.

DO NOT use human flaggers.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind directions, temperature inversions, application equipment and sprayer settings.

NOTE: Use of this product in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

5.2 MIXING AND APPLICATION EQUIPMENT

MIXING WITH WATER

For ground or industrial type sprayers, fill the spray tank with one-half the required amount of water. Add the proper amount of herbicide, see “**Weed Control**” (sections 7.1 and 8.1) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent excessive foaming. Removing hose from tank immediately will avoid back siphoning into water source. Use of mechanical agitators may cause excessive foaming. Bypass lines should terminate at the bottom of the tank.

For use in knapsack sprayers, it is suggested that the proper amount of this herbicide be mixed with water in a larger container. Fill sprayer with the mixed solution.

TANK MIXING PROCEDURE

The following steps should be followed when adding tank mix partners, using a herbicide loading system or adding product directly into the tank:

1. Fill spray tank 3/4 full of water.
2. Start agitation and run for entire mixing and spraying operation.
3. Add required amount of the tank mix partner.
4. Flush herbicide loading tank and herbicide containers with water.
5. If using a herbicide loading system - ensure that the loading tank and lines to the pump are empty and flushed out with water before adding tank mix partner.
6. Add required amount of Roundup WeatherMAX With Transorb 2 Technology Liquid Herbicide.
7. Flush herbicide loading tank and herbicide containers with water.
8. If using a herbicide loading system - ensure that the loading tank and lines to the pump are flushed with water and empty before starting spray operation.

Always start and end the mixing and spraying operation with a clean system.

APPLICATION EQUIPMENT

BOOM EQUIPMENT

For control of perennial weeds and woody brush and trees listed on this booklet using conventional boom equipment – apply this product in 50 to 300 litres of clean water per hectare as a broadcast spray using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

For control of annual weeds listed on this booklet using conventional boom equipment – Apply this product in 50 to 100 litres of clean water per hectare as a broadcast spray, except as otherwise stated on this label using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

HAND HELD AND HIGH VOLUME EQUIPMENT (use coarse sprays only)

For control of weeds and woody brush and trees listed in the “Weed Control” section (6.0) of this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements – Unless otherwise specified, make a 0.67 percent solution of this product in water (0.67 litres of this product in 100 litres of water) and apply to foliage of vegetation to be controlled. For best results, use a 1.34 percent solution (1.34 litres of this product in 100 litres of water) on harder to control perennials such as field bindweed, hemp dogbane, milkweed and Canada thistle.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of run-off. Handgun applications should be properly directed to avoid spraying desirable plants.

SELECTIVE EQUIPMENT

Selective equipment such as **WIPER** and **ROLLER** applicators can be used for weed control in soy and dry beans, orchards, vineyards, cranberries, strawberries and non-crop areas. For information regarding use of this product with selective equipment, refer to “**Selective Equipment**” (section 9.12).

AERIAL EQUIPMENT

Aerial application can only be used for weed control in preharvest situations. Refer to sections 5.3 and 9.9.2 for application information.

Directions for use

Apply only by fixed-wing or rotary aircraft which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate(s) recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of spotter planes is recommended.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the Monsanto Technical Support Line at 1-800-667-4944 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume 30-100 litres per hectare.

5.3 BUFFER ZONES

- i) **DO NOT** apply during periods of dead calm or when winds are gusty. **DO NOT** apply with spray droplets smaller than ASAE medium classification
- ii) Aerial Application: **DO NOT** apply when wind speed is greater than 16 km/h [summerfallow, preseed, glyphosate tolerant crops (canola, soybeans, corn sugar beets)] or (preharvest) at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the ASAE coarse classification.
- iii) Buffer Zones

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands) and estuarine/marine habitats.

Method of Application	Buffer Zones (metres) required for protection of:	
	Aquatic Habitat	Terrestrial Habitat
Field sprayer*	15	15
Aerial – Roundup Ready® Canola	5	40
Aerial - prior to seeding all crops; summerfallow; Roundup Ready 2 Yield Soybeans, Roundup Ready 2 Xtend Soybeans, Roundup Ready Soybeans; Corn Varieties with Roundup Ready Corn 2	30	70

Technology		
Roundup Ready Sugar Beets		
TruFlex Roundup Ready canola		
Aerial - preharvest	25	55

*For field sprayers, buffer zones can be reduced by 70% when using shrouds or 30% when using cones. When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixtures.

6.0 WEEDS CONTROLLED

This product controls many annual and perennial grasses, broadleaf weeds, and woody brush and trees when applied as recommended and under conditions described. For information on how to control specific weeds including herbicide rate, refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (sections 7.1 and 8.1). The following is a partial list of weeds controlled:

6.1 ANNUAL WEEDS

ANNUAL GRASSES

Barnyard Grass

Echinochloa crusgalli

Blue Grass (annual)

Poa annua

Crab Grass (large)

Digitaria sanguinalis

Crab Grass (smooth)

Digitaria ischaemum

Downy Brome-grass

Bromus tectorum

Fall Panicum

Panicum dichotomiflorum

Giant Foxtail

Setaria faberii

Green Foxtail

Setaria viridis

Persian Darnel

Lolium persicum

Volunteer Barley

Hordeum spp.

Volunteer Corn

Zea mays

Volunteer Wheat

Triticum spp.

Wild Oats

Avena fatua

Wild Proso Millet

Panicum miliaceum

Yellow Foxtail

Setaria glauca

OTHER

Dodder

Cuscuta spp.

ANNUAL BROADLEAF WEEDS

Chickweed

Stellaria media

Cleavers

Galium aparine

Cocklebur

Xanthium strumarium

Corn Spurry

Spergula arvensis

Cow Cockle

Saponaria vaccaria

Eastern Black Nightshade

Solanum ptycanthum

Fleabane (Canada)

Erigeron canadensis

Flixweed

Descurainia sophia

Green Smartweed

Polygonum scabrum

Hempnettle

Galeopsis tetrahit

Kochia

Kochia scoparia

Lady's-Thumb

Polygonum persicaria

Lamb's-quarters (common)

Chenopodium album

Narrow-leaved Hawk's Beard

Crepis tectorum

Narrow-leaved Vetch

Vicia angustifolia

Night-flowering Catchfly

Silene noctiflora

Pennsylvania Smartweed

Polygonum pensylvanicum

Prickly Lettuce

Lactuca scariola

Ragweed (common)

Ambrosia artemisiifolia

Redroot Pigweed

Amaranthus retroflexus

Round-Leaved Mallow

Malva pusilla

Russian Thistle

Salsola pestifer

Shepherd's Purse

Capsella bursa-pastoris

Smooth Pigweed

Amaranthus hybridus

Sowthistle (annual)

Sonchus oleraceus

Stinkweed

Thlaspi arvense

Storksbill

Erodium cicutarium

Velvetleaf

Abutilon theophrasti

Volunteer Canola (rapeseed)

Brassica spp.

Volunteer Flax

Linum spp.

Wild Buckwheat

Polygonum convolvulus

Wild Mustard

Sinapis arvensis

Wild Tomato

Solanum triflorum

6.2 PERENNIAL WEEDS

PERENNIAL GRASSES/SEDGES

Blue Grass (Canada)

Poa compressa

Blue Grass (Kentucky)

Poa pratensis

Brome Grass (smooth)

Bromus inermis

Cattail (common)

Typha latifolia

Cottontop

Eriophorum chamissonis

Foxtail Barley

Hordeum jubatum

Quackgrass

Agropyron repens

Wire-Stemmed Muhly

Muhlenbergia frondosa

Yellow Nutsedge

Cyperus esculentus

Common Reed

Phragmites australis

PERENNIAL BROADLEAVED WEEDS

Alfalfa

Medicago spp.

Curled Dock

Rumex crispus

Dandelion

Taraxacum officinale

Field Bindweed

Convolvulus arvensis

Hemp Dogbane

Apocynum cannabinum

Hoary Cress

Cardaria draba

Knotweed (Japanese)

Polygonum cuspidatum

Milkweed (common)

Asclepias syriaca

Poison Ivy

Rhus radicans

Purple Loosestrife

Lythrum salicaria

Sow Thistle (perennial)

Sonchus arvensis

Thistle (Canada)

Cirsium arvense

Toad Flax

Linaria vulgaris

Wormwood (Absinth)

Artemisia absinthium

6.3 WOODY BRUSH AND TREES

Alder

Alnus spp.

Birch

Betula spp.

Broadleaved meadowsweet

Spiraea latifolia

Cedar

Thuja spp.

Cherry

Prunus spp.

Douglas Fir

Pseudotsuga spp.

Hemlock

Tsuga spp.

Maple

Acer spp.

Mountain-fly honeysuckle

Lonicera villosa

Pine

Pinus spp.

Poplar

Populus spp.

Raspberry/Salmonberry

Rubus spp.

Rhododendron (Canadian)

Rhododendron canadense

Sheep laurel

Kalmia angustifolia

Snowberry (Western)

Symphoricarpos occidentalis

Sweet fern

Comptonia peregrina

Willow

Salix spp.

Withrod

Viburnum cassinoides

CROPLAND USES

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR.

7.0 ANNUAL WEED CONTROL

The following tables provide rates and specific application instructions for control of the annual weeds listed.

7.1 ANNUAL WEED CONTROL WITH ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE

DO NOT APPLY BY AIR.

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.5	Weeds up to 8 cm in height	Wild oats, green foxtail, volunteer barley, volunteer wheat Non-Roundup Ready® volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed	<ul style="list-style-type: none"> • For wild oats apply at 1-3 leaf stage. • Add 350 mL of a surfactant registered for use such as Agral® 90, Ag Surf®, or Companion™ • For heavy wild oat infestations use 0.67 L/ha rate.
0.67	Weeds 8 cm to 15 cm in height	All annual grasses listed above. All annual broadleaved weeds listed above plus flixweed* and kochia*	<ul style="list-style-type: none"> • Add 350 mL of surfactant registered for use as listed above. * Suppression only. Refer to higher rates of this table or tank mix table (section 7.2) for control options.
0.83 – 1.27	Weeds up to 15 cm in height	All annual grasses listed above plus downy brome, giant foxtail, and Persian darnel. All annual broadleaved weeds listed above plus cleavers, lamb's-quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer	<ul style="list-style-type: none"> • No surfactant required. • For tank mix weed control options see section 7.2. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3-4 leaf stage use 1.27 L/ha rate.

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
		flax, common ragweed*, Canada fleabane*, wild buckwheat**, narrow-leaved hawk's beard***	*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.
1.5	Weeds up to 15 cm in height	All annual grasses listed above plus crab grass and annual blue grass All annual broadleaved weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch	• For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).
2.33	Weeds over 15 cm in height	All annual grasses and broadleaved weeds listed above	• For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).

Agral is a registered trademark of Syngenta group company.

Ag-Surf is a registered trademark of Interprovincial Cooperative Ltd.

Companion is a trademark of Dow AgroSciences LLC.

NOTE: For spot treatment, 0.5 – 2.33 litres per hectare is approximately equivalent to 5 – 23 mL/100m², respectively.

7.2 ANNUAL WEED CONTROL WITH ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE TANK MIXTURES FOR SUMMERFALLOW & MINIMUM TILLAGE SYSTEMS

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED ♦	COMMENTS (Apply in 50-100 L/ha water)
Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide	0.5 – 0.67	Volunteer cereals, wild oats, green foxtail Non-Roundup Ready® volunteer canola (rapeseed), wild mustard, flixweed*,	This tank mix is registered for summerfallow use only . Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height.
+ Banvel® II	+ 0.29	lamb's-quarters, lady's-thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild	* Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide applied at 0.67 L/ha rate only.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
		buckwheat**	<p>** Suppression only. See other tank mixtures for control options.</p> <p>Add 350 mL/ha of surfactant – see list in section 7.3.</p>
<p>Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide</p> <p>+</p> <p>Banvel® II</p>	<p>0.61 – 1.27</p> <p>+</p> <p>0.31</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, Persian dandel</p> <p>Non-Roundup Ready® volunteer canola (rapeseed), wild mustard, flixweed, lamb's-quarters, lady's-thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed, wild buckwheat*, smartweed</p>	<p>Use this tank mix prior to seeding in wheat, barley, rye, oats, field corn only (do not apply to sweet corn).</p> <p>Certain broadleaved crops such as lentils, peas, canola and flax can be injured by a pre-seeding application and so should not be planted to a field receiving this treatment.</p> <p>Annual grasses - apply any time between emergence and heading.</p> <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>The higher rate should be applied when weeds are under poor growing conditions such as drought.</p> <p>*1- to 4- leaf stage.</p>
<p>Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide</p> <p>+</p> <p>Pardner®</p>	<p>0.5 – 0.67</p> <p>+</p> <p>1.25</p>	<p>Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed, wild buckwheat*</p> <p>Redroot pigweed**, kochia**, wild oats**</p>	<p>This tank mix is registered only for use in summerfallow, and prior to wheat, oats and barley in minimum tillage systems.</p> <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* Use Roundup WeatherMAX with Transorb 2 Technology</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
			<p>Liquid Herbicide at 0.67 L/ha rate only for wild buckwheat control.</p> <p>** 0.67 L/ha rate, suppression only. See other tank mixtures for control options.</p> <p>Add 350 mL/ha of surfactant – see list in section 7.3.</p>
<p>Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide</p> <p>+</p> <p>2,4-D^A</p>	<p>0.83 – 1.27</p> <p>+</p> <p>0.6 – 0.9⁴ or 1.2 – 1.5⁵</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel</p> <p>Volunteer canola, (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia, lamb's-quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***</p> <p>Volunteer Roundup Ready canola (1-4 leaf stage)⁴, bluebur⁴, burdock⁴, cocklebur⁴, common plantain⁴, daisy fleabane⁴, false flax⁴, false ragweed⁴, goat's beard⁴, mustards⁴ (except dog and tansy), prickly lettuce⁴, ragweeds⁴, Russian pigweed⁴, shepherd's purse⁴, stinging nettle⁴, sweet clover⁴, thyme-leaved spurge⁴, wild radish⁴, wild sunflower⁴</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p>⁴ 2,4-D at 0.6 – 0.9 L/ha (280 – 420 g ai/ha).</p> <p>⁵ 2,4-D at 1.2 – 1.5 L/ha (560 – 700 g ai/ha). Use a minimum of 80 L/ha water when using 2,4-D amine formulations at these rates.</p> <p>Use this tank mix prior to seeding or after seeding but before crop emergence in wheat, winter wheat, barley and rye.</p> <p>No surfactant required.</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
		Volunteer Roundup Ready canola (rapeseed) (4-6 leaf stage) ⁵ , annual sowthistle ⁵ , common chickweed ⁵ , common purslane ⁵ , dog and tansy mustard ⁵ , oak-leaved goosefoot ⁵ , common groundsel ⁵ , hairy galinsoga ⁵ , hawkweed ⁵ , heal-all ⁵ , knotweed ⁵ , peppergrass ⁵ , pineapple weed ⁵ , prostrate pigweed ⁵ , purslane ⁵ , sheep sorrel ⁵ , green smartweed ⁵ , tumble pigweed ⁵ , velvetleaf ⁵ , volunteer canola (rapeseed) ⁵	
Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 2,4-D ^B	0.5 – 0.67 + 1.2	Volunteer cereals, wild oats*, green foxtail* Volunteer canola (rapeseed), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia Lamb's-quarters**, Russian thistle**	This tank mix is registered for summerfallow use only. Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * Use Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at 0.67 L/ha rate only for wild oat and green foxtail control. ** Suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant – see list in section 7.3.
Roundup WeatherMAX with Transorb 2 Technology Liquid	0.83 – 1.27	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
<p>Herbicide</p> <p>+</p> <p>MCPA^C 500 g/L formulation; if another formulation is used, adjust rate accordingly.</p>	<p>+</p> <p>0.5 – 0.7¹</p> <p>OR 0.5 – 1.0²</p>	<p>Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***</p> <p>Volunteer Roundup Ready canola (1-4 leaf stage)^{1,2}, bluebur³, burdock³ (before 4 leaf stage), false flax³, flixweed³, lamb's quarters³, mustards³ (except dog and tansy), prickly lettuce³, ragweeds³, redroot pigweed³, Russian pigweed³, shepherd's purse³, stinkweed (field pennycress)³, vetch³, wild radish³, wild sunflower³</p>	<p>beyond 8 cm in height.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p>¹ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to peas.</p> <p>² MCPA at 0.5 – 1.0 L/ha (250 – 500 g ai/ha) prior to wheat, barley, oats, corn (field and sweet)^C, rye and flax.</p> <p>³ MCPA at 0.7 – 1.0 L/ha (350 – 500 g ai/ha) only.</p> <p>Use this tank mix prior to seeding in wheat, barley, rye, oats, corn (field and sweet)^C, flax and field peas^C.</p> <p>No surfactant required.</p>
<p>Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide</p> <p>+</p> <p>Buctril® M Herbicide</p>	<p>0.83 – 1.27</p> <p>+</p> <p>0.5 – 1.0¹</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel.</p> <p>Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
		<p>thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk's beard***</p> <p>Volunteer Roundup Ready Canola (1-4 leaf stage)^{1,2}</p> <p>Seedlings up to the 4-leaf stage²: green smartweed, pale smartweed, lady's thumb, cow cockle, redroot pigweed, flixweed, bluebur, shepherd's purse, kochia³, Russian thistle³, scentless chamomile⁴, volunteer sunflower, night flowering catchfly, cocklebur, velvetleaf⁵, ball mustard, American nightshade</p> <p>Seedlings up to the 6-leaf stage²: wild tomato</p> <p>Seedlings up to the 8-leaf stage²: wild buckwheat, tartary buckwheat, common buckwheat, stinkweed, wild mustard, wormseed mustard, lamb's quarters, common ragweed, common groundsel</p> <p>Perennials (top growth)²: Canada thistle, perennial sowthistle</p>	<p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p>¹ Buctril M at 0.5 – 1.0 L/ha (280 – 560 g ai/ha) for all crops listed.</p> <p>² Buctril M at 1.0 L/ha (560 g ai/ha only).</p> <p>³ Spray before plants are 5 cm high.</p> <p>⁴ Spring annuals only.</p> <p>⁵ Spray before plants are 8 cm high.</p> <p>Use this tank mix prior to seeding in wheat, barley, rye, oats, corn, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow brome grass, seedling streambank wheatgrass and reed canary grass.</p> <p>No surfactant required.</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
<p>Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide</p> <p>+</p> <p>MCPA amine (500 g/L formulation; if another formulation is used, adjust rate accordingly).</p>	<p>0.83 – 1.27</p> <p>+</p> <p>0.5 – 0.7</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel.</p> <p>Volunteer canola (rapeseed)(non Roundup Ready), wild mustard, flixweed, redroot pigweed, lady’s thumb, stinkweed, kochia, lamb’s quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrow-leaved hawk’s beard***</p> <p>Volunteer Roundup Ready canola (1-4 leaf stage)³, bluebur⁴, burdock⁴ (before 4 leaf stage), false flax⁴, flixweed⁴, lamb’s quarters⁴, mustards⁴ (except dog and tansy), prickly lettuce⁴, ragweeds⁴, redroot pigweed⁴, Russian pigweed⁴, shepherd’s purse⁴, stinkweed⁴ (field pennycress), vetch⁴, wild radish⁴, wild sunflower⁴</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p>³ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to lentils and chickpeas.</p> <p>⁴ MCPA amine at 0.7 L/ha (350 g ai/ha) only.</p> <p>Use this tank mix prior to seeding in lentil and chickpea. Under drought conditions, deep seeding and/or brief rain showers after seeding may cause injury to emerging seedlings in sprayer overlaps.</p> <p>No surfactant required.</p>
<p>Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide</p> <p>+</p>	<p>0.83 – 1.27</p> <p>+</p>	<p>Volunteer cereals, Canada thistle (suppression), cow cockle, wild buckwheat, Canada fleabane common ragweed narrow-leaved hawk's beard, dandelion, downy brome, flixweed, giant</p>	<p>Use this tank mix in summerfallow or prior to seeding wheat and barley.</p> <p>Refer to Express Toss-N-Go label for the appropriate weed growth stage.</p> <p>Add 350 mL/ha of surfactant –</p>

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED♦	COMMENTS (Apply in 50-100 L/ha water)
Express Toss-N-Go Herbicide Or Express Toss-N-Go Dry Flowable 75% Herbicide	10 g/ha (7.5 g ai/ha)	foxtail, green foxtail, hempnettle, kochia, lady's thumb, lamb's quarters, persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer canola, volunteer flax, wild mustard, wild oats	see list in section 7.3.

♦ For foxtail barley, refer to “**Perennial Weed Control**” table (section 8.1).

^B 0.56 kg ai/ha of 2,4-D. ^B, ^A Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

^C Use only amine formulations of MCPA prior to seeding in corn and field peas.

Banvel II is a registered trademark of BASF.

Pardner and Buctril® are registered trademarks of Bayer.

Express is a registered trademark of E.I.duPont de Nemours and Company.

Toss-N-Go is a registered trademark of E. I. duPont Canada Company.

7.3 SURFACTANT INFORMATION

NOTE:

Addition of Surfactant – Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide tank mixtures for annual weed control may require the addition of a surfactant registered for use such as Agral 90, Ag-Surf or Companion. Refer to Section 7.2 for recommendations. Surfactant should be added at a rate of 350 millilitres per hectare, in 50 - 100 litres of clean water.

7.4 ADDITIONAL IMPORTANT INFORMATION FOR ANNUAL WEED CONTROL

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide applied alone will not control volunteers from crops containing the Roundup Ready® gene.

Allow at least 1 day after treatment before tillage.

Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds, in some situations.

For additional information and precautions, refer to “**General Information**” and “**Mixing and Application**” (Sections 4.0 and 5.0, respectively).

7.5 WEED CONTROL IN TRUFLEX ROUNDUP READY CANOLA VARIETIES

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE TO TRUFLEX ROUNDUP READY CANOLA VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) TRUFLEX ROUNDUP READY CANOLA SEED. CANOLA NOT DESIGNATED AS TRUFLEX ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to “**General Information**” and “**Mixing and Application**” (sections 4.0 and 5.0, respectively).
- Apply to TruFlex Roundup Ready canola only as directed.

DO NOT APPLY BY AIR

The following table describes the rate and specific application instructions for weed control in TruFlex Roundup Ready canola varieties.

WEED CONTROL IN TRUFLEX ROUNDUP READY CANOLA VARIETIES

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
0.55-0.83 Single application	Emergence to first flower*	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’s-quarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers, wild buckwheat, shepherd’s purse¹, cow cockle¹, night-flowering catchfly¹, smartweed¹, stork’s-bill, flixweed, narrow-leaved hawk’s beard</p> <p><u>Perennials: (Suppression)</u> Canada thistle, perennial sow thistle and dandelion</p>	<p>¹The 0.55 l/ha rate can be used for control of shepherd’s purse, cow cockle and night-flowering catchfly at the 1– 3 leaf stage of the crop or for control of smartweed at the 4 –6 leaf stage.</p> <p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p>

		Perennials: (Season-long control) Quackgrass,	
1.27 Single application	Emergence to first flower *	All the above weeds plus: <u>Perennials (season-long control)</u> Canada thistle, and perennial sow thistle	
0.83 Sequential applications	Emergence to first flower *	All the above weeds plus: <u>Annual Broadleaves</u> round-leaved mallow <u>Perennials (season-long control)</u> foxtail barley, Canada thistle, and perennial sow thistle	For sequential applications, ensure the crop has not advanced beyond the recommended growth stage
1.67 Single application	Emergence to first flower *	All the above weeds plus: Foxtail barley, smooth pigweed, common ragweed, cocklebur, eastern black nightshade, pennsylvania smartweed, foxtail (yellow and giant), fall panicum, wild proso millet, crabgrass (smooth and large), velvet leaf, biennial wormwood ² wire-stemmed muhly, volunteer adzuki beans ³ (Suppression only) Common Milkweed Yellow nutsedge	² Biennial wormwood should be at 2-8 leaf stage and actively growing. ³ For control of volunteer adzuki beans (unifoliolate to the 4 th trifoliolate leaf stage) apply 1.67 L/ha. A second 1.67 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliolate to fourth trifoliolate leaf stage and actively growing.
1.67 Sequential applications	Emergence to first flower *	All the above weeds plus: <u>Perennials (season-long control)</u> Dandelion Common Milkweed Field Bindweed Yellow nutsedge Horsenettle, Tall waterhemp Bur cucumber	A sequential application may be made at least 2 weeks after the first application. A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. Common milkweed should be 15-60 cm in height and actively growing. Yellow nutsedge should be 5-15 cm in height and actively growing.

			Horse-nettle (2-12-leaf stage) Tall waterhemp up to and including the 18 leaf stage) Bur Cucumber from the 1-18 leaf stage.
3.33 Single application	Emergence to 6 leaf	All the above weeds	One application allowed in crop per season

* First flower is when 50% of the plants in the field have no more than one flower.

Ensure the crop has not advanced beyond the recommended growth stage for all applications.

Guidelines:

Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.

Maximum 3.33L/ha is allowed for the postemergence use.

7.5.1 TRUFLEX ROUNDUP READY HYBRID CANOLA SEED PRODUCTION

For Use only in TRUFLEX ROUNDUP READY Canola Seed Production Systems

Apply using ground boom spray equipment.

Roundup WeatherMAX With Transorb 2 Technology Liquid Herbicide may be applied for the control of non-glyphosate tolerant canola pollen parental line(s) in hybrid canola seed production fields containing both TruFlex Roundup Ready line(s) and non-TruFlex Roundup Ready line(s).

When pollination is complete or near completion, non-TruFlex Roundup Ready pollen parental line(s) may be controlled with an application of 0.83 to 1.67 litres per hectare of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide applied in 50 to 200 litres per hectare water.

Sequential applications (**maximum 2 applications**) may be used for the control of pollen parental line(s) but the total maximum rate applied must not exceed 1.67 litres per hectare. Allow at least 5 days between sequential applications.

7.6 WEED CONTROL IN ROUNDUP READY® CANOLA VARIETIES

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE ON ROUNDUP READY® CANOLA VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) ROUNDUP READY® CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS ROUNDUP READY® WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to “**General Information**” and “**Mixing and Application**” (sections 4.0 and 5.0, respectively).
- Apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide in Roundup Ready® canola only as directed in the following weed control table.
- Some short-term, visual yellowing may occur when Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT APPLY BY AIR.

The following table describes the rate and specific application instructions for control of annual and perennial weeds in Roundup Ready® canola varieties.

WEED CONTROL IN ROUNDUP READY® CANOLA VARIETIES

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
0.55 – 1.27	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’s-quarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry,</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p> <p>Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use the 0.83 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd’s purse, cow cockle and</p>

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
		wild tomato, cleavers*, wild buckwheat*, shepherd's purse*, cow cockle*, night-flowering catchfly*, smartweed*, stork's-bill*, flixweed*, narrow-leaved hawk's beard*, round-leaved mallow*** <u>Perennials</u> <u>(suppression)**</u> Canada thistle, perennial sow thistle, dandelion <u>Perennials (season-long</u> <u>control)</u> Quackgrass**, foxtail barley***, Canada thistle****, and perennial sow thistle****	night-flowering catchfly at the 1– to 3-leaf stage of the crop or for control of smartweed at the 4– to 6-leaf stage. ** A single application of 0.83 L/ha is required. *** Sequential applications of 0.83 L/ha are required. **** Sequential applications of 0.83 L/ha are required or a single application of 1.27 L/ha. For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. Maximum 1.66 L/ha is allowed for the postemergence use.

7.6.1 TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in Roundup Ready® canola varieties, apply a tank mixture of 0.28 L/ha of Lontrel 360 with 0.83 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide, in 100 litres of water per hectare. Apply when canola is in the 2- to 6-leaf stage. Refer to the Lontrel 360 and to the Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

Lontrel® is a registered trademark of Dow AgroSciences LLC.

7.6.2 ROUNDUP READY® HYBRID CANOLA SEED PRODUCTION

For Use only in Roundup Ready® Hybrid Canola Seed Production Systems

Apply using ground boom spray equipment.

Roundup WeatherMAX With Transorb 2 Technology Liquid Herbicide may be applied for the control of non-Roundup Ready® canola pollen parental line(s) in hybrid canola seed production fields containing both Roundup Ready® line(s) and non-Roundup Ready® line(s).

When pollination is complete or near completion, non-Roundup Ready® pollen parental line(s) may be controlled with an application of 0.83 to 1.67 litres per hectare of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide applied in 50 to 200 litres per hectare water.

Sequential applications (**maximum 2 applications**) may be used for the control of pollen parental line(s) but the total maximum rate applied must not exceed 1.67 litres per hectare. Allow at least 5 days between sequential applications.

7.7 WEED CONTROL IN ROUNDUP READY OR ROUNDUP READY 2 YIELD® SOYBEAN VARIETIES

7.7.1 WEED CONTROL IN ROUNDUP READY 2 YIELD SOYBEAN VARIETIES

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE ON ROUNDUP READY 2 YIELD SOYBEAN VARIETIES ONLY.

NOTE: ROUNDUP READY 2 YIELD SOYBEAN VARIETIES ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE. ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY 2 YIELD. SOYBEANS WHICH ARE NOT DESIGNATED AS ROUNDUP READY 2 YIELD WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
1.67	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild	¹ A single application of 1.67 L/ha will provide suppression only. ² For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be at least 2

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
		<p>buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, Russian thistle, non-Roundup Ready canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night flowering catchfly, stork's bill, flixweed, narrow leaved hawk's-beard</p> <p>common milkweed^{1,2}, yellow nutsedge^{1,2}, field bindweed², perennial sow thistle, Canada thistle. wire-stemmed muhly.</p> <p>Bur cucumber (<i>Sicyos angulatus</i>)³</p> <p>Volunteer adzuki beans (<i>Vigna angularis</i>)⁴</p> <p>Biennial Wormwood (<i>Artemisia biennis</i>)⁵</p>	<p>weeks after the first application.</p> <ul style="list-style-type: none"> • A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application made must be applied no later than the flowering stage of the soybean. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. • Wire-stemmed muhly should be 10-20 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment. • ³Sequential applications of 1.67 L/ha followed by 1.67 L/ha at the 1-18 leaf stage. Applications should be at least 2 weeks apart for best results. • ⁴For control of volunteer adzuki beans (unifoliate to the 4th trifoliate leaf stage) apply 1.67 L/ha. A second 1.67

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
			<p>L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliate to fourth trifoliate leaf stage and actively growing</p> <ul style="list-style-type: none"> • ⁵ Only one application per season at 1.67L/ha. Biennial wormwood should be at 2-8 leaf stage and actively growing.
3.33	First trifoliate leaf stage through flowering	All weeds listed above plus horse-nettle ⁶ and tall waterhemp ⁶	<ul style="list-style-type: none"> • Only one application per season at 3.33 L/ha. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment. <p>⁶For season-long control of horse-nettle (<i>Solanum carolinense</i>) (2- to 12-leaf stage) or, for control of tall waterhemp (<i>Amaranthus tuberculatos</i>) (up to and including the 18-leaf stage) apply 3.33 L/ha. Alternatively, sequential applications of 1.67 L/ha followed by 1.67 L/ha may be applied. Applications should be at least 2 weeks apart for best results.</p> <p>⁶For the control of Tall</p>

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100 – 200 L/ha water volumes)
			Waterhemp use the higher rate if weeds are beyond the 6-leaf stage.
4.67	First trifoliolate leaf stage through flowering	All weeds listed above plus control of volunteer alfalfa and bromegrass	<p>Only one application per season at 4.67 L/ha.</p> <p>Alfalfa should have 9 or more leaves and be at least 10-15 cm tall.</p> <p>Bromegrass should have at least 3-5 leaves and be at least 10-15 cm tall.</p> <p>Short term yellowing may occur in sprayer overlap areas with the 4.67 L/ha application rate. This effect is temporary and will not influence crop growth or yield.</p>

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

7.7.2 WEED CONTROL IN ROUNDUP READY SOYBEAN VARIETIES

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE ON ROUNDUP READY SOYBEAN VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY. SOYBEANS WHICH ARE NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

Apply 1.67 – 3.33 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide to Roundup Ready soybean varieties.

See Section 7.7.1 for use directions.

The 4.67 L/ha rate can only be applied to soybeans designated as Roundup Ready 2 Yield.

7.7.3 TANK MIXTURES

Tank mixtures may be applied to both Roundup Ready 2 Yield and Roundup Ready soybean varieties

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide Plus Pursuit Herbicide

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit herbicide may be tank mixed with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at a rate of 1.67 liters per hectare. Use 0.16 to 0.21 liters per hectare of Pursuit and apply up to and including the 3rd trifoliolate leaf stage of the Roundup Ready soybeans in 100-200 liters per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimeters (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit as per instructions on the Pursuit label and then add Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide and Pursuit herbicide on Roundup Ready 2 yield soybeans.

Only one application per season of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at 1.67 liters per hectare tank mixed with Pursuit herbicide at 0.16 to 0.21 liters per hectare is permitted.

Refer to the Pursuit herbicide label for further safety precautions and handling instructions.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide Plus FirstRate™ Herbicide (For Use in Eastern Canada Only)

For added residual control of common ragweed, velvetleaf, cocklebur, jimsonweed and giant ragweed, FirstRate Herbicide may be tank mixed with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at a rate of 0.83 - 1.67 liters per hectare. Use 20.8 grams per hectare of FirstRate Herbicide.

Do not harvest soybean plants for forage or hay. Do not harvest soybeans for 65 days after application.

Only one application per season of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide tank mixed with FirstRate Herbicide is permitted.

Refer to the FirstRate Herbicide label for further safety precautions and handling instructions.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide and Classic 25 DF Herbicide*

For season-long control of dandelion, annual sow thistle, and yellow nutsedge*, apply Classic 25 DF Herbicide at 36 grams per hectare plus either Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at 1.67 litres per hectare. Add a non-ionic surfactant such as Agral 90, Citowett Plus, or Ag-Surf at 0.2% v/v. Apply when soybeans are in the 1-3 trifoliolate stage; dandelions and annual sow thistle less than 15 cm tall and across; and up to the 8 leaf stage for yellow nutsedge. **USE THIS TANK MIXTURE ONLY ON SOYBEANS WITH THE ROUNDUP READY® TRAIT.**

Consult the Classic 25 DF Herbicide label for tank mixing instructions and use precautions including instructions on replanting to other crops.

*Use this tank mix only in cases of heavy infestation of yellow nutsedge.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Sencor® 75 DF Herbicide for Control of Spreading Atriplex (Eastern Canada only)

For the control of spreading atriplex, apply a preplant application of Sencor 75 DF Herbicide at 0.75 - 1.11 kg product per hectare on medium textured soils or 1.11 – 1.5 kg product per hectare on fine textured soils plus Roundup WeatherMAX With Transorb 2 Technology Liquid Herbicide at 1.67 litres per hectare. Do not apply on coarse textured soils. Apply when spreading atriplex is up to the 10-leaf stage of growth. Only one application per year is permitted.

Refer to the Sencor 75 DF Herbicide label for further use directions, safety precautions and handling instructions. Consult Table entitled "Sencor 75 DF Alone: Preemergence Application" for specific rates based on soil types and organic matter.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Assure® II Herbicide

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED ♦	COMMENTS
1.67 – 3.33 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 0.25 - 0.38 L/ha Assure II Herbicide	First trifoliolate leaf stage through flowering.	Volunteer Roundup Ready corn. Apply at the 2- to 6-leaf stage of the weed.	See additional information following this table.

*Sure Mix may or may not be added to this tank mix

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

Volunteer Roundup Ready Corn Control

For control of volunteer Roundup Ready corn, Assure II herbicide may be tank mixed with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. Use 1.67 to 3.33 litres per hectare Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide and 0.25 - 0.38 litre per hectare of Assure II herbicide.

The higher rate of Assure II may be required when there are high populations of volunteer Roundup Ready corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 300 litres per hectare of clean water.

Mixing: Add and mix Assure II herbicide as per instructions on the Assure II herbicide label and then add Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliolate leaf stage through flowering and when the volunteer Roundup Ready corn is at the 2- to 6-leaf stage.

A PHI (preharvest interval) of 80 days is required for the tank-mix of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide and Assure II herbicide on Roundup Ready 2 Yield soybeans.

Refer to the Assure II Herbicide label for further safety precautions and handling instructions.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Venture® L Herbicide

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED ♦	COMMENTS
1.67 – 3.33 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 0.45 - 0.60 L/ha Venture L Herbicide**	First trifoliolate leaf stage through third trifoliolate leaf stage	Volunteer Roundup Ready corn. Apply at the 2- to 5- leaf stage of the weed.	See additional information following this table.

*Turbocharge may or may not be added to this tank mix

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

For control of volunteer Roundup Ready corn, Venture L Herbicide may be tank mixed with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. Use 1.67 to 3.33 litres per hectare Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide and 0.45 - 0.60 litre per hectare of Venture L Herbicide.

The higher rate of Venture L Herbicide may be required when there are high populations of volunteer Roundup Ready corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 200 litres per hectare of clean water.

Mixing: Add and mix Venture L Herbicide as per instructions on the Venture L Herbicide label and then add Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliolate leaf stage through third trifoliolate leaf stage and when the volunteer Roundup Ready corn is at the 2- to 5- leaf stage.

A PHI (preharvest interval) of 90 days is required for the tank-mix of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide and Venture L Herbicide on Roundup Ready 2 Yield and Roundup Ready Soybeans.

Refer to the Venture L Herbicide label for further safety precautions and handling instructions.

FirstRate is a trademark of Dow AgroSciences LLC.

Pursuit is a registered trademark of BASF.

Sencor is a registered trademark of Bayer.

Assure and Classic are registered trademarks of E.I. duPont de Nemours and Company.

Venture is a registered trademark of a Syngenta group company.

7.8 WEED CONTROL IN ROUNDUP READY 2™ XTEND SOYBEANS

Roundup WeatherMAX® with Transorb® 2 Technology Liquid Herbicide and XtendiMAX with VaporGrip Technology Herbicide Use In Roundup Ready 2 Xtend Soybeans

WARNING: THIS TANK MIXTURE CAN ONLY BE APPLIED TO SOYBEAN VARIETIES DESIGNATED AS ROUNDUP READY 2 XTEND. DO NOT APPLY THIS TANK MIXTURE TO ROUNDUP READY 2 YIELD OR ROUNDUP READY SOYBEAN VARIETIES.

For control of many annual and perennial broadleaf weeds, as well as residual suppression or control of small seeded broadleaf weeds, apply Xtendimax with VaporGrip Technology at 823 mL to 1.71 L/ha plus Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at 1.67 L/ha to 4.67 L/ha in a minimum spray volume of 100 L/ha.

Pre-Harvest Interval(s):

- 7-10 days for soybean forage and 13–15 days for soybean hay.

Apply XTENDIMAX WITH VAPORGRIP TECHNOLOGY HERBICIDE to weeds < 10 cm

Do not apply this tank mixture to Roundup Ready 2 Xtend soybean using aerial spray equipment.

Refer to the Xtendimax with VaporGrip Technology herbicide label for general precautions, directions on spray drift management, list of weeds controlled and for further safety precautions and handling instructions.

7.9 WEED CONTROL IN CORN VARIETIES WITH ROUNDUP READY® 2 TECHNOLOGY

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE ON ONLY CORN VARIETIES THAT ARE DESIGNATED AS CONTAINING ROUNDUP READY® 2 TECHNOLOGY (I.E. CONTAINS A ROUNDUP READY GENE).

NOTE: CORN VARIETIES CONTAINING ROUNDUP READY® 2 TECHNOLOGY ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE. ALWAYS USE PEDIGREED (I.E. CERTIFIED) CORN SEED DESIGNATED AS CONTAINING ROUNDUP READY® 2 TECHNOLOGY. CORN WHICH IS NOT DESIGNATED AS CONTAINING ROUNDUP READY® 2 TECHNOLOGY MAY BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (use 100-200 L/ha water volumes)
1.67	Up to and including 8 leaf stage	Velvetleaf, common ragweed, common lamb's-quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, wild mustard, Russian thistle, non-Roundup Ready canola (rapeseed), hemp-nettle, kochia, chickweed, corn spurry, wild tomato,	<p>¹ A single application of 1.67 L/ha will provide suppression only.</p> <p>² For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be at least 2 weeks after the first application.</p> <ul style="list-style-type: none"> • A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application must be applied no later than the 8 leaf stage of the corn. • Common milkweed should be 15-60 cm in height and actively growing.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (use 100-200 L/ha water volumes)
		cleavers, shepherd's purse, cow cockle, night- flowering catchfly, stork's-bill, flixweed, narrow-leaved hawk's- beard common milkweed ^{1,2} , yellow nutsedge ^{1,2} , round- leaved mallow ² , field bindweed ² , perennial sow thistle, Canada thistle, wire-stemmed muhly	<ul style="list-style-type: none"> • Yellow nutsedge should be 5-15 cm in height and actively growing. • Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. • Wire-stemmed muhly should be 10-20 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment.
3.33	Up to and including 6 leaf stage	All weeds listed above	<ul style="list-style-type: none"> • Only one application per season at 3.33 L/ha. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 5-15 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment.

♦ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

7.9.1 TANK MIXTURES

For tank mixtures, add herbicide according to instructions on the product label, and then add Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide according to instructions on this label (section 5). Refer to the tank mix herbicide labels for further safety precautions, use recommendations and product handling instructions.

DO NOT APPLY BY AIR

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (Use 100-200 L/ha water volumes)
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 0.75 – 1.0 kg ai/ha atrazine*	Up to and including the 5-leaf stage.	Residual control of lamb's-quarters, redroot pigweed, common ragweed.	Tank-mix should be used when only a single application timing is desired. Use the higher rate of atrazine for heavier weed infestations.
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 2.5 – 3.7 L/ha Marksman Herbicide	Up to and including the 5-leaf stage.	Residual control of lamb's-quarters, redroot pigweed, common ragweed, velvetleaf.	Tank-mix should be used when only a single application timing is desired. Use the higher rate of Marksman for heavier weed infestations.
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 0.56 – 1.12 L/ha 2,4-D Herbicide**	Before the corn is 15 cm tall (leaf extended) and/or before the 6 leaf stage.	Volunteer Roundup Ready canola – up to the 4 leaf stage.	Tank mix is most effective when treating small (4 leaf or less) canola plants.
Two applications: First application: 1.67 L/ha	Before the corn is 15 cm tall (leaf extended) and/or before the 6 leaf	Volunteer Roundup Ready canola – up to the 4 leaf stage.	Tank mix is most effective when treating small (4 leaf or less) canola

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100-200 L/ha water volumes)
<p>Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 0.56 L/ha 2,4-D Herbicide**</p> <p>Second application: 1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 0.42-0.56 L/ha 2,4-D Herbicide**</p>	<p>stage.</p>		<p>plants.</p>
<p>1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 13.3 g/ha Peak 75WG Herbicide + 0.3 L/ha Banvel II Herbicide + non ionic surfactant (0.2% v/v)</p>	<p>Spike up to and including the 5 leaf stage.</p>	<p>Volunteer Roundup Ready canola – up to the 4 leaf stage.</p>	<p>Tank mix is most effective when treating small (4 leaf or less) canola plants.</p>
<p>1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 1.1 L/ha</p>	<p>Before the corn is 15 cm tall (leaf extended)</p>	<p>Volunteer Roundup Ready canola – up to the 4 leaf stage.</p>	<p>Tank mix is most effective when treating small (4 leaf or less) canola plants.</p>

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100-200 L/ha water volumes)
Dyvel DSp Liquid Herbicide			
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 0.21 L/ha Callisto® 480SC Herbicide	3 - 8 leaf stage of corn	Eastern black nightshade, velvetleaf, redroot pigweed, common ragweed (suppression only) plus emerged annual and perennial weeds	Add Agral 90 at 0.2% v/v Apply up to the 8 leaf stage of broadleaf weeds Some perennial weeds may not be controlled with these rates.
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 0.21 L/ha Callisto® 480SC Herbicide + 0.58 L/ha Aatrex Liquid 480 Herbicide	3 - 8 leaf stage of corn	Eastern black nightshade, velvetleaf, redroot pigweed, common ragweed plus emerged annual and perennial weeds	Add Agral 90 at 0.2% v/v Apply up to the 8 leaf stage of broadleaf weeds Some perennial weeds may not be controlled with these rates
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 2.5 L/ha Primextra® II Magnum® Herbicide	Apply up to and including 6 leaf stage of corn.	Annual grasses and broadleaf weeds, emerged annual or perennial weeds	This tank mix requires the use of a surfactant. AGRAL 90 or Ag-Surf may be used. Do NOT apply this tank-mix to soils with less than 1% or more than 10% organic matter.
1.67 L/ha Roundup WeatherMAX with Transorb 2	Spike to 5 leaf	Weeds controlled by Roundup WeatherMAX plus improved control of	

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (Use 100-200 L/ha water volumes)
Technology Liquid Herbicide + 0.625 L/ha Banvel II Herbicide		Velvetleaf and extended control of late germinating, deep rooted annuals on the Banvel II Herbicide label.	
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 285 g/ha Distinct Herbicide + Non ionic surfactant + 28% UAN	2 to 6 leaf	Weeds controlled by Roundup WeatherMAX plus extended control of late emerging weeds listed on the Distinct Herbicide label.	Non-ionic surfactant applied at 0.2% v/v 28% UAN applied at 1.25% v/v
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 1.25 L/ha Dual II Magnum Herbicide + 1.0 kg ai/ha atrazine*	Spike to 6 leaf	Weeds controlled by Roundup WeatherMAX plus extended control of annual grass and broadleaf weeds on the tank mix partner labels.	
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 1.1 L/ha Frontier Herbicide + 1.0 kg ai/ha atrazine*	Emergence to 3 leaf	Weeds controlled by Roundup WeatherMAX plus extended control of annual grass and broadleaf weeds on the tank mix partner labels.	

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED♦	COMMENTS (Use 100-200 L/ha water volumes)
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 4.2 L/ha Prowl 400EC Herbicide + 1.0 kg ai/ha atrazine*	Up to and including the 4 leaf stage of corn	Weeds controlled by Roundup WeatherMAX plus extended control of annual grass and broadleaf weeds on the tank mix partner labels.	
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 0.21 L/ha Callisto® 480SC Herbicide + Non ionic surfactant	3 to 8 leaf stage of corn	Weeds controlled by Roundup WeatherMAX plus extended control of eastern black nightshade, velvetleaf, redroot pigweed, and common ragweed.	Add non ionic surfactant at 0.2% v/v
1.67 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 2.5 - 3.0 L/ha Primextra II Magnum Herbicide	Spike to 6 leaf stage of corn	Weeds controlled by Roundup WeatherMAX plus extended control of annual grass and broadleaf weeds on the Primextra II Magnum label.	

* 0.75 to 1.0 kilogram active ingredient atrazine per hectare is equivalent to 1.56 to 2.08 litres per hectare of Atrazine 480™ or Aatrex Liquid 480™.

** 500 g ai/litre of 2,4-D formulation. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D. Some corn hybrids may be injured by an application of 2,4-D. It is recommended that the corn seed provider be contacted regarding the tolerance of the corn hybrid to be treated, to 2,4-D prior to application of this tank mix.

◆ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

Aatrex and Peak are registered trademarks of a Syngenta group company.
Marksman, Banvel II and Dyvel DS are registered trademarks of BASF Corporation.

7.10 WEED CONTROL IN SWEET CORN VARIETIES WITH ROUNDUP READY 2 TECHNOLOGY

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE ON ONLY SWEET CORN VARIETIES THAT ARE DESIGNATED AS CONTAINING ROUNDUP READY 2 TECHNOLOGY (I.E. CONTAINS A ROUNDUP READY GENE).

NOTE: SWEET CORN VARIETIES CONTAINING ROUNDUP READY 2 TECHNOLOGY ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE. ALWAYS USE PEDIGREED (I.E. CERTIFIED) SWEET CORN SEED DESIGNATED AS CONTAINING ROUNDUP READY 2 TECHNOLOGY. SWEET CORN WHICH IS NOT DESIGNATED AS CONTAINING ROUNDUP READY 2 TECHNOLOGY MAY BE DAMAGED OR DESTROYED BY THIS TREATMENT.

WEED CONTROL:

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED◆	COMMENTS (use 100-200 L/ha water volumes)
1.67	Up to and including 8 leaf stage	See Weeds Controlled in Section 7.7 Table	<ul style="list-style-type: none"> • See Comments in Section 7.7 Table • A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment. • Any second application must be applied no later than the 8 leaf stage of the corn.
3.33	Up to and including 6 leaf stage	See Weeds Controlled in Section 7.7 Table	<ul style="list-style-type: none"> • See Comments in Section 7.7 Table • Only one application per season at 3.33 L/ha.

◆ Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

◆ Plants not fully emerged at the time of application will escape treatment.

TANK MIXES - Do not apply Tank Mixes to sweet corn varieties with Roundup Ready 2 Technology

Allow a minimum of 30 days between application of this product and harvest.

DO NOT APPLY BY AIR

7.11 WEED CONTROL IN ROUNDUP READY® SUGAR BEETS

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE ON ROUNDUP READY SUGAR BEET VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SUGAR BEET SEED DESIGNATED AS ROUNDUP READY. SUGAR BEETS WHICH ARE NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

For weed control in Roundup Ready sugar beets apply 0.83 – 2.30 L/ha of Roundup WeatherMAX With Transorb 2 Technology Liquid Herbicide to emerged weeds. Refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (Sections 7.1 and 8.1, respectively) for a listing of weeds controlled.

Apply Roundup WeatherMAX With Transorb 2 Technology Liquid Herbicide to emerged weeds up to 15 cm in height.

Up to four applications of Roundup WeatherMAX With Transorb 2 Technology Liquid Herbicide may be applied to Roundup Ready sugar beets. Allow a minimum of 10 days between applications.

Do not exceed a total maximum quantity of 7.31 L/ha of this product per season (e.g. the first application of up to 2.30 L/ha plus 3 applications of up to 1.67 L/ha).

Do not harvest Roundup Ready sugar beets within 30 days after the final application of Roundup WeatherMAX With Transorb 2 Technology Liquid Herbicide.

7.12 AERIAL APPLICATION FOR WEED CONTROL IN TRUFLEX ROUNDUP READYCANOLA, ROUNDUP READY CANOLA, ROUNDUP READY 2 YIELD SOYBEANS, ROUNDUP READY SOYBEANS, CORN VARIETIES WITH ROUNDUP READY 2 TECHNOLOGY , AND ROUNDUP READY SUGAR BEETS– WET FIELD CONDITIONS ONLY

Refer to the general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific instructions in this section.

RESTRICTED USES

FOR USE IN THE PRAIRIE PROVINCES ONLY (including PEACE RIVER REGION OF B.C.)

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators and aerial application services approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patterning) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 – 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a ROUNDUP herbicide aerial application training course provided by Monsanto Canada Inc.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the *direct daily supervision* of a qualified pilot.

This product may be applied with aerial equipment only if ground equipment cannot be used due to flooded field conditions.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide may be applied with aerial application equipment for control of certain annual grass and broadleaf weeds and the suppression or season long control of certain perennial weeds.

EXTREME CARE MUST BE TAKEN WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this

product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

Directions for use

THIS USE IS LIMITED TO SITUATIONS WHERE FIELD CONDITIONS ARE EXTREMELY WET SUCH THAT GROUND SPRAYERS (TRACTOR & FIELD SPRAYER, HIGH CLEARANCE SPRAYERS OR ANY KIND OF GROUND SPRAYER) CANNOT TRAVEL ACROSS THE FIELD TO MAKE EFFECTIVE WEED CONTROL APPLICATIONS.

DO NOT TANK MIX ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE WITH ANY OTHER PRODUCT WHEN APPLIED BY AERIAL APPLICATION.

Apply only by fixed-wing or rotary aircraft which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate(s) recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of spotter planes is recommended.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

Use Precautions

Use only when meteorological conditions at the treatment site allow for complete and even target coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the Monsanto Technical Support Line at 1-800-667-4944 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume 30-100 litres per hectare.

Buffer Zones: Refer to Section 5.3 for required buffer zones.

7.12.1 AERIAL APPLICATION FOR WEED CONTROL IN TRUFLEX ROUNDUP READY CANOLA – WET FIELD CONDITIONS ONLY

**WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2
TECHNOLOGY LIQUID HERBICIDE TO TRUFLEX ROUNDUP READY
CANOLA VARIETIES ONLY.**

**NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) TRUFLEX ROUNDUP
READY CANOLA SEED. CANOLA NOT DESIGNATED AS TRUFLEX
ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS
TREATMENT.**

Apply 0.55 – 3.33 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide from the 0 to 6 leaf stage of the crop. Repeat applications may be required if a second flush of weeds germinates prior to canopy closure. For sequential applications, a

maximum of 1.67 L/ha may be applied twice up to the first flower stage. Ensure the crop has not advanced beyond the recommended growth stage. A total maximum of 3.33 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide allowed for postemergence use. Refer to Section 7.5 for weeds controlled and application rates.

DO NOT apply tank mixtures of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide with any other product by aerial application.

7.12.2 AERIAL APPLICATION FOR WEED CONTROL IN ROUNDUP READY CANOLA – WET FIELD CONDITIONS ONLY

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE ON ROUNDUP READY CANOLA VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) ROUNDUP READY CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

Some short-term, visual yellowing may occur when Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

Apply 0.55 – 1.27 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at the 0 to 6 leaf stage of the crop. Repeat applications may be required if a second flush of weeds germinates prior to canopy closure. For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. A total maximum of 1.66 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide allowed for postemergence use. Refer to Section 7.5 for weeds controlled and application rates.

DO NOT apply tank mixtures of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide with any other product by aerial application.

7.12.3 AERIAL APPLICATION FOR WEED CONTROL IN ROUNDUP READY 2 YIELD SOYBEANS AND ROUNDUP READY SOYBEANS – WET FIELD CONDITIONS ONLY

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE ON ROUNDUP READY 2 YIELD SOYBEANS AND ROUNDUP READY SOYBEAN VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY. SOYBEANS WHICH ARE NOT

DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

Apply 1.67 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide from the first trifoliolate leaf stage through flowering stage of the crop. Repeat application may be required for late weed flushes emerging after the initial treatment. Any second application must be applied no later than the flowering stage of the soybean. A total maximum of 3.34 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide Maximum is allowed for postemergence use. Refer to Section 7.6 for weeds controlled and application rates.

DO NOT apply tank mixtures of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide with any other product by aerial application.

7.12.4 AERIAL APPLICATION FOR WEED CONTROL IN CORN VARIETIES WITH ROUNDUP READY 2 TECHNOLOGY – WET FIELD CONDITIONS ONLY

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE ON CORN VARIETIES WITH ROUNDUP READY 2 TECHNOLOGY

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) CORN SEED DESIGNATED AS ROUNDUP READY. CORN WHICH IS NOT DESIGNATED AS ROUNDUP READY MAY BE DAMAGED OR DESTROYED BY THIS TREATMENT.

Apply 1.67 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide up to and including the 8 leaf stage of corn. Repeat application may be required for late weed flushes emerging after the initial treatment. Any second application must be applied no later than the 8 leaf stage of corn. A total maximum of 3.34 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide is allowed for postemergence use. Refer to Section 7.7 for weeds controlled and application rates.

DO NOT apply tank mixtures of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide with any other product by aerial application.

7.12.5 AERIAL APPLICATION FOR WEED CONTROL IN ROUNDUP READY SUGAR BEETS – WET FIELD CONDITIONS ONLY

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE ON ROUNDUP READY SUGAR BEET VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SUGAR BEET SEED DESIGNATED AS ROUNDUP READY. SUGAR BEET WHICH ARE NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

Apply 0.83-1.67 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide . A single repeat application may be required for late weed flushes emerging after the initial treatment. Allow a minimum of 10 days between applications. A total maximum of 3.34 L/ha Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide is allowed for postemergence use. Refer to Section 7.11 for additional information.

Do not harvest Roundup Ready sugar beets within 30 days after the final application of Roundup WeatherMAX With Transorb 2 Technology Liquid Herbicide.

7.13 WEED CONTROL IN ALFALFA VARIETIES WITH ROUNDUP READY TECHNOLOGY (DO NOT APPLY TO ALFALFA GROWN FOR SEED PRODUCTION)

WARNING: APPLY ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE TO ALFALFA VARIETIES WITH ROUNDUP READY TECHNOLOGY ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E. CERTIFIED) ALFALFA SEED DESIGNATED AS ROUNDUP READY. ALFALFA SEED WHICH IS NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

ALFALFA VARIETIES WITH ROUNDUP READY TECHNOLOGY ARE TOLERANT OF GLYPHOSATE, THE ACTIVE INGREDIENT IN ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE.

DO NOT APPLY BY AIR.

Applications can be made from emergence until 5 days prior to cutting.

A sequential treatment may be applied to alfalfa varieties with Roundup Ready Technology for control of late weed flushes.

Allow a minimum of 5 days between application and cutting of alfalfa.

Additional applications of this product should be at least 25 days apart.

Total number of in-crop applications not to exceed 3 per growing season.

New Stand Establishment (Seedling Year): Due to the biology and breeding constraints of alfalfa, up to 10 percent of the seedlings may not contain a Roundup Ready gene and will not survive or thrive after the first application of this product. To limit the undesirable effects of stand gaps created by the loss of alfalfa plants not containing a Roundup Ready gene, an application of this product should be applied at or before the 4 trifoliate leaf stage of alfalfa during the establishment (seedling) year.

Note: Where alfalfa with Roundup Ready Technology is grown with a companion or cover crop, or is overseeded with a second species, in-crop (over-the-top) applications of this product will eliminate the non-Roundup Ready (non-glyphosate tolerant) species.

WEED CONTROL IN ALFALFA VARIETIES WITH ROUNDUP READY TECHNOLOGY

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
1.67 single application	Emergence until 5 days prior to cutting	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass, giant and yellow foxtail, fall Panicum, wild proso millet, smooth and large crabgrass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’s-quarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers, wild buckwheat, shepherd’s purse, cow cockle, night-flowering catchfly, smartweed, stork’s-bill, flixweed, narrow-leaved hawk’s beard, smooth pigweed, cocklebur, Eastern black nightshade, velvetleaf, biennial wormwood¹.</p> <p><u>Perennials (season-long control)</u> Quackgrass, Canada thistle, and perennial sow thistle, foxtail barley, dandelion.</p>	<p>All weeds should be actively growing at time of application.</p> <p>¹Biennial wormwood should be at 2-8 leaf stage.</p>
3.33 single application	Emergence until 5 days prior to cutting	<p><u>All the above weeds plus:</u> <u>Annual Broadleaves</u> Round-leaved mallow <u>Perennials (season-long control):</u> Foxtail barley², dandelion², common milkweed³, field bindweed, yellow nutsedge⁴, horsenettle⁵, tall waterhemp⁶, bur cucumber⁷</p>	<p>²3.33 L/ha rate is for large, more established plants, heavy infestation or if plants are stressed.</p> <p>³Common milkweed should be 15-60 cm in height.</p> <p>⁴Yellow nutsedge should be 5-15 cm in height.</p> <p>⁵Horse-nettle from the 2 to 12 leaf stage).</p> <p>⁶Tall waterhemp up to and including the 18-leaf stage.</p> <p>⁷Bur cucumber from the 1-18 leaf stage.</p>

7.14 HYBRID CORN SEED PRODUCTION USING THE RHS® SYSTEM WITH ROUNDUP READY 2 TECHNOLOGY

DO NOT APPLY BY AIR

The RHS designation indicates that the corn contains technology that allows for tassel-only susceptibility to this product. Use of this product on corn hybrids or inbreds that are not designated as RHS or as corn containing Roundup Ready® 2 Technology may result in severe crop injury and yield loss.

Tassel Control

This product may be used as an over-the-top broadcast application for tassel control in RHS corn inbred recipient lines in seed production fields planted with corn containing Roundup Ready 2 Technology as the pollen donor.

USE INSTRUCTIONS: This product may be applied for tassel control up from the 8 to the 13 leaf stage before flowering at use rates from 1.67 to 2.34 L/ha per application. Up to two applications for tassel control are permitted.

Weed Control

Refer Only to Section: 7.9 WEED CONTROL IN CORN VARIETIES WITH ROUNDUP READY 2 TECHNOLOGY

Tank mixes: See section 7.9.1 TANK MIXTURES for use rates, timings and restrictions. Note that only those tank mixtures for which the tank mixture partner herbicide products are registered for use on seed (inbred) corn may be used for weed control on RHS corn inbred recipient lines and corn inbred donor lines containing Roundup Ready 2 Technology.

8.0 PERENNIAL WEED CONTROL

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR.

When applied as recommended under the conditions described, this product will control the perennial weeds listed in the following table.

**8.1 PERENNIAL WEED CONTROL WITH ROUNDUP WEATHERMAX
WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE**

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Quackgrass (control, light to moderate infestations)	3 to 4 green leaves or more	1.67	50 - 300	<ul style="list-style-type: none"> • Apply in clean water using flat fan nozzles. • Allow 3 or more days after treatment before tillage. • Refer to “Quackgrass” notes in section 8.2.1 for more information. • For higher volumes (i.e., 150 – 300 L/ha) an approved surfactant must be added at 0.5 L per 100 L of clean water (0.5% v/v). Refer to list in section 8.2.2. See also below.
Quackgrass (long term control, heavy infestations, high water volumes)	3 to 4 green leaves or more	1.67 – 4.67	50 - 300	<ul style="list-style-type: none"> • Allow 3 or more days after treatment before tillage. • Rates higher than 1.67 L/ha will provide more consistent, longer term control, especially with heavier infestations and/or higher water volumes (i.e., 150 – 300 L/ha). • Refer to “Quackgrass” notes in section 8.2.1 for more information.
Canada Thistle	Rosette stage (summerfallow)	1.67	50 - 100	<ul style="list-style-type: none"> • Apply in clean water using flat fan nozzles. • Allow 10 or more days after treatment before tillage. • Refer to “Canada Thistle” notes in section 8.2.3 for more information.
Canada Thistle	Bud stage or beyond	3.17 – 4.67	100 - 300	<ul style="list-style-type: none"> • Allow 5 or more days after treatment before tillage.
Field Bindweed	Full bloom or beyond	4.67 - 8	100 - 300	<ul style="list-style-type: none"> • Allow 7 or more days after treatment before tillage.

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Common Milkweed*	Bud to full bloom (preharvest)	1.67	50 – 100	<ul style="list-style-type: none"> • See “Preharvest Treatment” (section 9.9) for more information. • Allow 7 or more days after treatment before tillage. • Reduced control may occur after full bloom. • Milkweed may not all be in the correct stage, therefore, repeat treatments may be required.
	Bud to full bloom	8	100 - 300	
Toadflax	Vegetative Stage (summerfallow)	1.67	50 - 100	<ul style="list-style-type: none"> • Apply in clean water using flat fan nozzles. • Allow 7 or more days after treatment before tillage in summerfallow. • For more information, see “Toadflax Control” (section 8.2.4), or “Preharvest Treatment” (Section 9.9).
	Bud to full bloom (preharvest)			
Alfalfa	Early bud to full bloom stage	2.47 – 3.33	50 - 300	<ul style="list-style-type: none"> • Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. • For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see section 8.2.6.
	Fall applications only			

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Dandelion	< 15 cm	1.67	50 – 100	<ul style="list-style-type: none"> • Allow 3 or more days after treatment before tillage for all rates. • Use the higher rate when infestations are heavy. • Refer to “Dandelion” notes in section 8.2.5 for more information. • Allow 7 or more days after treatment before tillage. For more information, see “Preharvest Treatment” (section 9.9).
	> 15 cm	2.47 – 3.33	50 – 300	
	Rosette to full bloom (preharvest)	1.67	50 - 100	
Foxtail Barley	Seeding to heading	1.67 – 3.33	50 - 100	<ul style="list-style-type: none"> • Allow a minimum of 1 day after treatment before tillage or seeding. • Use higher rates for larger, more established plants, heavy infestations or if plants are stressed.
Common reed	Apply when actively growing, or to regrowth after burning or mowing.	2.0 – 8.0	100-500	<ul style="list-style-type: none"> • For partial control and for best results, treat in late summer or early fall when plants are actively growing and in full bloom Treatment before or after this stage may lead to reduced control. Due to the dense nature of the vegetation, which may prevent good spray coverage or uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop. • For higher volumes (i.e, 150–300 L/ha) an approved surfactant should be added at 0.5 L per 100 L of clean water (0.5% v/v). • DO NOT TREAT PLANTS OVER OPEN WATER.

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
				Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide is not registered for direct application to bodies of water.
Other Perennials (see listing section 6.2)	Early heading or early bud stage	4.67 - 8	100 - 300	<ul style="list-style-type: none"> • Allow 7 or more days after treatment before tillage.

*NOTE: For spot treatment, mix 80 millilitres of product in 5 litres clean water per 100 m² (1.67 – 8 litres per hectare is approximately equivalent to 17 – 80 mL/100m², respectively).

8.2 SPECIAL NOTES FOR PERENNIAL WEED CONTROL

8.2.1 QUACKGRASS

For **season-long control on fall tilled ground**: Apply 1.67 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

8.2.2 SURFACTANT INFORMATION

The following is a list of approved surfactants for use with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide for control of quackgrass:

Agral 90 Companion
Ag Surf

Always refer to surfactant label for specific instructions regarding use of that product.

8.2.3 CANADA THISTLE

Control of Canada Thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE PLUS BANVEL II TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summerfallow or in postharvest stubble, apply 1.13 litres per hectare Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus 1.25 litres per hectare Banvel II in 100 – 200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90, Ag-Surf or Companion.

For best results in summerfallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a damaging frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

8.2.4 TOADFLAX

Control of Toadflax in a Summerfallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 10th to July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

8.2.5 DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

8.2.6 ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 1.67 to 3.33 litres per hectare Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 1.67 to 3.33 litres per hectare Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14 day interval between application and planting is required.

Use the higher Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide rates when perennial grasses are prevalent.

8.2.6.1 REMOVAL OF ROUNDUP READY ALFALFA – TANK MIXES

*TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.

The addition of a tank-mix partner is required to remove a stand of Roundup Ready alfalfa. Herbicide applications should be made in the fall when the Roundup Ready Alfalfa is at the bud stage of growth. Tillage at 2-3 weeks following herbicide application can improve control and consistency under stressed conditions (drought, frost, cold temperatures).

Use the following products and rates to control Roundup Ready alfalfa plus annual and perennial weeds (See Sections 7.1 and 8.1).

- Mix with water to achieve a total applied volume of 100 L/ha.
- Apply to Roundup Ready alfalfa in the pre-bud to start of flowering stage.
- Best control achieved when the majority of plants are in the bud stage of development.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at 1.67-3.34 L/ha plus only one of the following Tank Mix Products:
2,4-D* Herbicide at 1.52 L/ha or:
Banvel II Herbicide at 1.25 L/ha or:
Lontrel 360 Herbicide at 0.56-0.83 L/ha or:
2,4-D* Herbicide at 1.05 L/ha + Banvel II Herbicide at 1.25 L/ha or:
2,4-D* Herbicide at 1.05 L/ha + Lontrel 360 Herbicide at 0.42 L/ha or:
Curtail M Herbicide at 2.0 - 3.0 L/ha

*rate for a 564 g ae/L formulation of 2,4-D. Adjust rates for other formulations. Includes both amine and ester formulations.

8.2.7 ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to “Perennial Weed Control with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide” (section 8.1).

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow-up tillage after application should be delayed 5 to 7 days for best results. See “**Weed Control**” tables (sections 7.1 and 8.1) for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

9.0 CROPLAND SITUATIONS

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 and 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR EXCEPT FOR PREHARVEST AERIAL APPLICATION (SECTION 9.9.2).

DO NOT APPLY BY AIR UNLESS SPECIFIED ON THIS LABEL

This product can be applied as a broadcast spray or spot treatment prior to planting all crops, postharvest to annual crops, preharvest in wheat, barley, oats, canary seed, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, soybeans, dry beans and forages, and in summerfallow. It may also be applied as a broadcast spray in Roundup Ready® corn 2, soybeans or canola (sections 7.5, 7.6 and 7.7). It may be applied as a directed spray in orchards, vineyards, blueberries and strawberries, and using selective equipment in soy and dry beans, orchards, vineyards, cranberries and strawberries (refer to specific sections below for more information). **For specific instructions on weed control in the following cropping situations, always refer to “Annual and Perennial Weed Control” (sections 7.0 and 8.0) for more information.**

9.1 PRIOR TO PLANTING – ALL CROPS

This product may be applied prior to planting all crops for control of emerged weeds listed on this label. Ensure weeds are at the desired stage at the time of application. This product does not provide preemergent weed control and newly germinating weeds may be a problem in the crop. **APPLY BEFORE SEEDING OR TRANSPLANTING.**

9.1.1 PRIOR TO PLANTING – TANK MIXES* - SOYBEANS

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

WHERE TANK MIX PARTNER LABELS REFER ONLY TO OLDER (360 G/L) GLYPHOSATE PRODUCTS, E.G. ROUNDUP ORIGINAL OR ROUNDUP TRANSORB, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Pursuit Herbicide

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Pursuit Herbicide can be applied prior to or after seeding, but before crop emergence. Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide will control emerged weeds listed on this label when applied as directed (refer to Annual and Perennial Weed control sections in the Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide product label). Pursuit Herbicide will control weeds germinating from seed.

ONLY SOYBEANS, WHITE BEANS, KIDNEY BEANS, PROCESSING PEAS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 100 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus metribuzin (Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor Soybean Flowable Herbicide, or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds taller than 4 cm in soybeans, apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide in tank mix with Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide or Lexone DF Herbicide as a preplant surface or pre-emergence application before crop emergence.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in soybeans. Apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.15– 1.75 L/ha as a

preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

Perennial weeds such as quack grass may not be controlled with lower rates of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. Use higher rates of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide if perennial weeds are present.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus metribuzin (Sencor 75DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor Soybean Flowable Herbicide or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds in soybeans.

Apply as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence. Perennial weeds such as quack grass may not be controlled with lower rates of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Broadstrike Dual Magnum Soybean Herbicide

Broadstrike Dual Magnum Soybean Herbicide at 1.56 L/ha may be tank mixed with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at 1.7 L/ha for control of existing annual weeds and certain perennial weeds including quack grass. This tank mix may be applied preplant surface or pre-emergence in minimum till or no-till conditions. When mixing, add the Broadstrike Dual Magnum Soybean Herbicide component first.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Frontier Herbicide

For burndown and residual control of selected annual weeds apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Frontier Herbicide preplant surface or pre-emergence.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus linuron

For burndown and residual control of selected annual weeds apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus linuron after seeding but before crop emergence.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems: Apply this tank mixture in a minimum of 200 L/ha of total volume.

9.1.2 PRIOR TO PLANTING – TANK MIXES* - CORN

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

WHERE TANK MIX PARTNER LABELS REFER ONLY TO OLDER (360 G/L) GLYPHOSATE PRODUCTS, E.G. ROUNDUP ORIGINAL OR ROUNDUP TRANSORB, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn. Apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide in tank mix with Dual Magnum or Dual II Magnum at 1.25 to 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. Use higher rates of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide if perennial weeds are present.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus Aatrex Liquid 480 Herbicide

For burndown and residual control of selected annual weeds in corn. Apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.25 – 1.75 L/ha plus Aatrex Liquid

480 Herbicide at 2.1 - 3.1 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. Use higher rates of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide if perennial weeds are present.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Primextra II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Primextra II Magnum preplant surface or pre-emergence application before crop emergence. This tank mixture requires the use of a surfactant, either Agral 90 or Ag-Surf. See mixing instructions for more information.

Perennial weeds such as quack grass may not be controlled with lower rates of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. Use higher rates of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide if perennial weeds are present.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Fieldstar Herbicide

For burndown and residual control of selected annual weeds apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Fieldstar Herbicide as a preplant surface or pre-emergence application before crop emergence.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Frontier Herbicide

For burndown and residual control of selected annual weeds apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Frontier Herbicide as a preplant surface or pre-emergence application before crop emergence.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Prowl herbicide

For burndown and residual control of selected annual weeds apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Prowl herbicide after seeding but before crop emergence.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus linuron herbicide

For burndown and residual control of selected annual weeds apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus linuron herbicide after seeding but before crop emergence.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Converge Pro Herbicide or Converge 75 WDG Herbicide

Surface Preplant:

CONVERGE 75 WDG Herbicide can be applied to the soil surface up to 14 days prior to planting. CONVERGE 75 WDG Herbicide must be tankmixed with atrazine when applied as a surface preplant application. When weed growth is present at the time of application, Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide can be added to the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine treatment for burndown control of these weeds. Do not incorporate.

Preemergence:

Converge Pro Herbicide or Converge 75 WDG Herbicide can also be applied after planting to just prior to crop emergence. Atrazine and/or Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide can be tank mixed with pre-emergent applications of Converge Pro Herbicide or Converge 75 WDG Herbicide .

Apply Converge Pro Herbicide at 165-220 mL per hectare, or Converge 75 WDG Herbicide at 105-140 g per hectare, tankmixed with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at 1.67 L per hectare for burndown control of emerged weeds in all tillage management systems and improved control of established dandelion in zero-tillage management systems. A three-way tankmix of Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine + Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide can be used to provide residual control of the weeds listed in the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine section.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems:

Apply this tankmix in a minimum of 200 L/ha of total volume.

Sencor and Axiom are registered trademarks of Bayer.

Lexone is a registered trademark of E.I. duPont de Nemours and Company.

Dual, Magnum and Primextra are registered trademarks of Syngenta group company.

Broadstrike and Fieldstar are trademarks of Dow Agrosiences LLC.

Frontier is a registered trademark of BASF Corporation.

9.1.3 PRIOR TO PLANTING – TANK MIXES* - CANOLA

***TANK MIXES – REFER TO THE RESPECTIVE PRODUCT LABELS WHEN TANK MIXING FOR USE RATES, CAUTIONS/WARNINGS, MIXING INSTRUCTIONS, RE-CROPPING RECOMMENDATIONS AND OTHER DETAILS.**

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus bromoxynil for preseed/preplant control of annual, perennial weeds and volunteer canola:

Apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide in a tank mix with bromoxynil. This tank-mix will control volunteer canola (all types) in addition to control of emerged weeds listed on this label when applied as directed (refer to Annual Weed Control Section 7.0 and Perennial Weed control Sections 8.0 prior to the planting of canola (all types).

For control of volunteer canola apply bromoxynil at a rate of 350 g/ha (e.g., 1.25 L/ha for herbicides containing 280 g/L bromoxynil, 1.5 L/ha for herbicides containing 235 g/L bromoxynil etc.) tank mixed with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide at 0.83 -1.27 L/ha (annual weeds) or 1.67-3.33 L/ha (perennial weeds) prior to the planting of canola.

9.2 POSTHARVEST STUBBLE TREATMENT

This product may be applied in the fall as a postharvest stubble treatment for control of perennial weeds such as quackgrass and Canada thistle. Allow weeds to regrow to the desired stage (20 to 25 centimetres tall for quackgrass and Canada thistle) before application and ensure they have a high proportion of green colouration. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frosts prior to application may decrease control.

9.3 SPOT TREATMENT (IN-CROP)

This product can be applied as an in-crop spot treatment in barley, corn, oats, soybeans, wheat, strawberry, blueberry, forage grasses and legumes including seed production. Applications should be made using the same rates and at the same growth stages as listed in the “**Weed Control**” tables (sections 7.1 and 8.1) or use a 0.67 percent solution for annual weeds and quackgrass and a 1.34 percent solution for other perennial weeds (a 0.67 percent solution equals 0.67 litres of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide in 100 litres of spray solution). 0.67 and 1.34 percent solutions should be applied to wet, but not run-off. Applications can be made using a boom sprayer, hose and handgun, or hand sprayer in accordance with instructions in “**Application Equipment**” (section 5.2).

9.3.1 Grazing Restrictions: Applications can be made up to heading of small grains, initial pod set on soy and dry beans, silking of corn and emergence of seed heads. The crop in the treated area will be killed. Take care to avoid drift for the same reason. **DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS FOR ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE TO TRANSLOCATE INTO ALL PLANT PARTS BEFORE GRAZING OR HARVESTING TREATED AREAS IN FORAGES.**

9.4 SUMMERFALLOW TREATMENT

This product, or labeled tank mixtures, may be applied in summerfallow to control weeds listed on this label. Ensure weeds are at the desired growth stage and actively growing at application for best results. Reduced control may result if weeds are drought stressed. Weeds will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds. Refer to Section 9.13 for aerial application use.

9.5 MINIMUM AND ZERO TILLAGE CROPPING SYSTEMS (ALL FIELD CROPS, INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES, CORN AND POTATOES)

This product may be applied prior to seeding or after seeding, but before crop emergence for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Applications made too far in advance of seeding may allow weeds to emerge between application and crop emergence, as this product does not provide residual weed control.

Minimum and Zero Tillage Tank Mixtures

9.5.1 Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus 2,4-D amine or ester can be applied prior to seeding or after seeding, but before crop emergence in **wheat, winter wheat, barley and rye**. Refer to “**Annual Weed Control with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.2 Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus bromoxynil (Pardner) can be applied prior to seeding or after seeding, but before crop emergence in **wheat, barley and oats**. Refer to “**Annual Weed Control with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.3 Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Pursuit® can be applied prior to, or after seeding, but before crop emergence in soybeans. Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide will control emerged weeds listed on this label when applied as directed (refer to “**Annual and Perennial Weed Control**” section 7.0 and 8.0). Pursuit will control weeds germinating from seed. Add the recommended rates of both products in 100 litres of water per hectare, following the instructions on the Pursuit herbicide label.

ALWAYS REFER TO THE PURSUIT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS. ONLY SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 120 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE.

Pursuit is a registered trademark of BASF Agrochemical Products B.V. Netherlands.

9.5.4 Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus MCPA can be applied prior to seeding in **wheat, barley, rye, oats, corn (field and sweet; MCPA amine only), flax and field peas (MCPA amine only)**. Refer to “**Annual Weed Control with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.5 Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Buctril M® can be applied prior to seeding in **wheat, rye, corn, barley, oats, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow brome grass, seedling streambank wheatgrass**

and reed canary grass. Refer to “**Annual Weed Control with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.6 Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus MCPA amine can be applied prior to seeding in **lentil and chickpea**. Refer to “**Annual Weed Control with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.5.7 Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Express Toss-N-Go Herbicide Or Express Toss-N-Go® Dry Flowable 75% Herbicide in pre-seed situations, **wheat and barley** may be seeded after a minimum of 24 hours after application. Refer to “**Annual Weed Control with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

ALWAYS REFER TO THE EXPRESS® TOSS-N-GO HERBICIDE OR EXPRESS TOSS-N-GO DRY FLOWABLE 75% HERBICIDE LABEL FOR FURTHER INFORMATION ON APPLICATION DIRECTIONS, TANK MIXING, AND USE PRECAUTIONS.

9.5.8 Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide plus Banvel II can be applied prior to seeding in **wheat, barley, rye, oats and field corn only (do not apply prior to seeding sweet corn)**. Refer to “**Annual Weed Control with Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide Tank Mixtures**” table for information (section 7.2).

9.6 FORAGES LEGUMES AND GRASSES

This product may be applied for control of emerged weeds prior to emergence of forage legumes and grasses. If the forages are to be under-seeded with a cover crop, this product must be applied prior to planting the cover crop.

9.7 PASTURE RENOVATION

Use this product to control or suppress existing vegetation for zero-tillage seeding of legumes into established sod for pasture renovation. Delay spraying until weed growth is at least 20 centimetres in height and a maximum number of seedlings or shoots have emerged. Application can be made immediately before, during or after seeding, but before crop emergence.

9.8 FORAGE SEED PRODUCTION

For spot treatment control of perennial weed problems such as quackgrass and Canada thistle in seed fields, apply as directed to vegetation that is at least 20 to 25 centimetres in

height but before emergence of seed head. The crop in the treated areas will be killed. Take care to avoid drift outside target areas for the same reason.

9.9 PREHARVEST TREATMENT

CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX AND DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle, Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed) (including Roundup Ready® varieties), flax (including low linolenic acid varieties), lentils, peas, dry beans, soybeans (including Roundup Ready® varieties) and forages. DO NOT apply to crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations. **EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.** Preharvest treatment to Roundup Ready® varieties of canola and soybean provides weed control only.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For forage crops, apply this product at 1.67 to 3.33 litres per hectare 3 to 7 days prior to the last cut before rotation or forage renovation. Consult the table “**Guidelines for Timing of Preharvest Applications**” (section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results, quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 to 14 days (or 3 to 7 days for forage applications) before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

DO NOT APPLY BY AIR.

9.9.1 GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including Roundup Ready® varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (INCLUDING LOW LINOLENIC ACID VARIETIES)	Less than 30	Majority (75% - 80%) of bolls are brown.
PEAS	Less than 30	Majority (75% - 80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80% - 90% leaf drop (original leaves).
SOYBEANS (including Roundup Ready® varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80% - 90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Monsanto Canada and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Monsanto Canada itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop listed below.

Accordingly, the Buyer and User assumes all risks related to performance and crop tolerance arising, and agrees to hold Monsanto Canada harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

DIRECTIONS FOR USE:

Preharvest Treatment of Chickpea, Dried Lupin, Dried Fava Bean, Mustard, Pearl Millet, Grain Sorghum, Canary Seed and Camelina.

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle and harvest management, Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide can be applied prior to harvest of chickpea, dried lupin, dried fava bean, mustard, pearl millet, grain sorghum, canary seed and camelina.. DO NOT apply to crops if grown for seed production.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide should be applied as a single preharvest application at 1.67 litres per hectare in 50 to 100 litres per hectare (100L/ha for dense vegetative cover) of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For further information see guidelines above. The Pre-harvest interval is 7 days.

GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
Chickpea	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves)
Dried Lupin		
Dried Fava Bean		
Mustard (Yellow/White, Brown, Oriental)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
Pearl Millet	Less than 30	Kernels will be hard & a black layer opposite the embryo at the base of the kernel will be present
Grain Sorghum (not for use as a forage crop)	Less than 30	Kernels will have a black-layer immediately above the point of kernel attachment in the floret near the base of the kernel.
Camelina	Less than 30	When 95% of pods have changed colour, seed is firm and less than 40% of seed is green
Canary Seed	Less than 30	Hard dough stage; a thumbnail impression remains on seed.

NOTE:

Pearl millet grain is to be harvested for use as animal feed only.

DO NOT GRAZE treated pearl millet forage or cut for hay.

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS

9.9.2 PREHARVEST AERIAL APPLICATION

Refer to the general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION PRAIRIE PROVINCES ONLY (including PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators and aerial application services approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patterning) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 – 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a ROUNDUP herbicide aerial application training course provided by Monsanto Canada Inc.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the *direct daily supervision* of a qualified pilot.

Refer to general directions and precautions concerning aerial application, sections 5.2, and 5.3, Buffer Zones.

DIRECTIONS FOR USE

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, dry beans and soybeans. Do not use on forages. **DO NOT apply to any crops if grown for seed production.**

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide should be applied at 1.67 L/ha in 20 – 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% of less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table “**Guidelines for Timing of Preharvest Applications**” (Section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 – 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

9.10 TREE PLANTINGS

SHELTERBELTS AND NURSERY STOCK (WOODY ORNAMENTALS)

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established nurseries or shelterbelts of the following species:

DECIDUOUS

Ash

Fraxinus spp.

CONIFEROUS

Fir

Abies spp.

Caragana*Caragana spp.***Cherry***Prunus spp.***Elm***Ulmus spp.***Lilac***Syringa spp.***Maple***Acer spp.***Mountain Ash***Sorbus spp.***Poplar***Populus spp.***Russian Olive***Elaeagnus spp.***Willow***Salix spp.***Juniper***Juniperus spp.***Pine***Pinus spp.***Spruce***Picea spp.***Yew***Taxus spp.*

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

9.11 TREE, VINE, BERRY AND OTHER CROPS

This product is recommended for annual and perennial weed control in established vineyards or orchards, in blueberry, cranberry and strawberry, or for site preparation prior to transplanting tree and vine crops. Applications may be made with boom equipment, shielded sprayers, hand held and high volume orchard guns, or with wiper applicator equipment (orchards, vineyards, cranberry and strawberry only). See “**Mixing and Application Equipment Information**” (section 5.2) and the following table for specific information on the use of equipment.

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual or pre-emergent weed control. For subsequent weed control, follow a program using residual herbicides or use repeated applications of this product. Do not apply more than 23 litres of this product per hectare per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES, OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

WEED CONTROL IN TREE, VINE, BERRY AND OTHER CROPS

CROP	RATE (L/ha)	PRE- HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Apples, Apricot, Cherry (sweet/sour), Peaches, Pears, Plums	1.5 - 8	30	3	Annual and perennial weeds	
Apples, Grapes	Tank Mix 1.5 – 8 + Simazine 2.0 – 4.5 kg ai/ha	-	1	Annual and perennial weeds	<ul style="list-style-type: none"> • Will provide season-long preemergent control. • Do not apply to coarse, sandy or gravelly soil. • Use according to the more restrictive label direction for each product in the mix. • DO NOT apply to orchards or vineyards that have been established less than 1 or 3 years, respectively. • Simazine rate is equivalent to 2.25 – 5.0 kg/ha Princep® Nine-T®, or 4.0 – 9.0 kg/ha Simadex®
Grapes	1.5 - 8	14	3	Annual and perennial weeds.	<ul style="list-style-type: none"> • Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. • Suckering should be conducted within 2

CROP	RATE (L/ha)	PRE- HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
					weeks prior to application. <ul style="list-style-type: none"> Do not apply to vines which have been established less than 3 years.
Highbush (cultivated) blueberry	1.87 – 3.73	30	1	Quackgrass	<ul style="list-style-type: none"> Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	0.67 – 1.34% solution (spot application)	Apply in non-bearing year only	1	Woody brush (section 6.3)	<ul style="list-style-type: none"> Apply as a directed spray in mid-summer of the vegetative (non-bearing) year. See section 9.3 for instructions on spot treatments.
Filberts, Hazelnut (established plantations)	1.5 – 2.33	14	-	Annual Weeds	<ul style="list-style-type: none"> Use as a directed spray, with no more than 275 kPa pressure.
Walnut, Chestnut, Japanese Heartnut	1.5 - 8	-	2	Annual and perennial weeds	<ul style="list-style-type: none"> Apply late spring and fall, postharvest but prior to a damaging frost. Apply in 200 – 300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 1.34% wiper solution (see “Wiper Applications” section 9.12).
Cranberry	13.4% solution (0.62 L Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide + 4L water)	30	1	Annual and perennial weeds	<ul style="list-style-type: none"> Apply using wick or wiper applicators (section 9.12).

CROP	RATE (L/ha)	PRE- HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Strawberry	0.67 – 1.34% solution (spot application) 22% solution (wiper application)	30	1	Emerged perennial weeds	<ul style="list-style-type: none"> • Apply when weeds are at a susceptible growth stage (see sections 8.1 and 8.2). • See section 9.3 for instructions on spot treatments. • See section 9.12 for instructions on wiper applications.
Sugar Beets	0.67 – 1.34% solution (spot application)	Treated crop MUST NOT be harvested	1	Dodder species	<ul style="list-style-type: none"> • Apply when dodder is vigorously growing but before flowering. • See section 9.3 for instructions on spot treatments.
Asparagus	0.83 – 1.67	7	1	Fall seeded ryegrass	<ul style="list-style-type: none"> • Apply in spring before emergence of crop shoots.

Princep and Nine-T are registered trademarks of Syngenta group company.
Simadex is a registered trademark of Bayer.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The **DIRECTIONS FOR USE** for this product for the uses described below were developed by persons other than Monsanto Canada and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Monsanto Canada itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, User assumes all risks related to performance and crop tolerance arising, and agrees to hold Monsanto Canada harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

DIRECTIONS FOR USE: For use in Eastern Canada only

Late Fall Broadcast Treatment of Newly Established Lowbush Blueberry Fields

For suppression of Lambkill (Sheep Laurel, *Kalmia angustifolia*) in newly cleared lowbush blueberry, apply Roundup WeatherMAX in the fall after 95 percent blueberry leaf drop, typically

late October or November. Do not apply Roundup WeatherMAX before one or two heavy, damaging fall frosts have occurred. Lambkill plants should have at least 50 percent green leaf colour at the time of application.

Apply Roundup WeatherMAX at 1.67 litres per hectare in 200-300 litres per hectare of clean water using a boom applicator. Do not add adjuvant to the spray mixture. Treat only areas of the field which have lambkill present. Apply Roundup WeatherMAX before pruning lowbush blueberry plants and do not prune for at least 14 days after application. **All fields treated with Roundup WeatherMAX must be pruned post treatment in the fall or the following spring before May 15th.** Pre-harvest interval is 550 days.

Use of fertilizers or fungicides for suppression of leaf diseases have been shown to delay leaf drop and blueberry plant dormancy. Do not apply Roundup WeatherMAX if 95 percent leaf drop has not occurred. Applications should not be made in consecutive years within the same treatment area. See “**Mixing and Application Equipment Information**” for additional information.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY DRIFT, OR MIST WITH NON-DORMANT FOLIAGE OR GREEN BARK OF LOWBUSH BLUEBERRY STEMS. CONTACT OF THIS PRODUCT WITH OTHER THAN DORMANT PLANTS CAN RESULT IN SERIOUS CROP DAMAGE.

CROP	RATE (L/ha)	PRE-HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS SUPPRESSED	COMMENTS
Lowbush blueberry	1.67	550	1	Lambkill/ Sheep Laurel	Apply in the late fall after 95% leaf drop (Late October/November). Do not apply within 550 days of harvest. Treated areas must be pruned after treatment.

SHORT ROTATION INTENSIVE CULTURE (SRIC) POPLAR (*Populus spp*)

DO NOT APPLY BY AIR.

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established crops of short rotation intensive culture (SRIC) Poplar species (*Populus spp.*)

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR

GREEN BARK OF TRUNK, BRANCHES, OR OTHER PARTS OF TREES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide may be applied prior to planting or as a post directed spray in established short rotation intensive culture crops. Apply Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide up to 8 L/ha in 50 – 100 liters or 150 – 300 L/h for quackgrass control by ground application only. Applications can be made 1-3 times per year during establishment however, not to exceed the limit of 8 L/ha per year. Shielded sprayers must be utilized when applying post directed spray solutions. Allow a 6-8 week interval between spray applications. Apply to actively growing weeds.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR INDICATED SPECIAL USE APPLICATIONS: (NORTH AMERICAN GINSENG).

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Monsanto Canada and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Monsanto Canada itself makes no representation or warranty with respect to performance (efficacy) and/or crop tolerance (phytotoxicity) claims for this product when used on the crop listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Monsanto Canada harmless from any claims based on efficacy and/or phytotoxicity in connection with the uses described below.

DIRECTIONS FOR USE

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS.

NORTH AMERICAN GINSENG

New Gardens (British Columbia only): Apply this product in the fall after seeding but before freeze-up in new gardens only to control volunteer cereals. Apply when weeds are at the growth stages listed on the product label. Use a single application of 1.67 litres per hectare in 50 to 100 litres water per hectare. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

Existing/Established Gardens: Apply this product in the spring before the crop has emerged above the soil. Apply when weeds are at the growth stages described in the product label. A maximum of two 1.67 litres per hectare applications in 50 to 100 litres water per hectare may be made in a season. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

9.12 SELECTIVE EQUIPMENT

WIPER APPLICATORS

This product may be applied with a wiper applicator, after dilution and thorough mixing with water, to listed weeds in soy and dry beans, grapes, orchards, cranberries, lowbush blueberries and strawberries. Applications must be made before initial pod set in soy and dry beans. (It may also be used in any industrial, tree planting and non-crop site specified on this label. See sections 9.10 and 10.1).

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution. Wiper applicators include either roller or wick devices which physically wipe appropriate concentrations or amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Performance may be improved by reducing speed in areas of heavy weed infestations to insure adequate wiper saturation. Best results may be obtained if 2 applications are made in opposite directions.

AVOID CONTACT WITH DESIRABLE VEGETATION. Contact of the herbicide solution with desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that wiper contact point is at least 5 centimetres above the desirable vegetation. Droplets or foam of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications should be made when the weeds are a minimum of 15 centimetres above the desirable vegetation. Best results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. See the “**Weed Control**” tables (sections 7.1 and 8.1) for recommended stage of growth for specific weeds.

NOTES

- **Maintain equipment in good operating condition. Avoid leakage or dripping onto desirable vegetation.**
- **Adjust height of applicator to insure proper contact with weeds.**

- **Keep wiping surfaces clean.**
- **Maintain recommended roller RPM on roller applicators while in use.**
- **Keep wiper material at proper degree of saturation with herbicide solution.**
- **DO NOT use wiper equipment when weeds are wet.**
- **DO NOT operate equipment at ground speeds below 4 and greater than 10 kilometres per hour. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to insure good coverage of weeds.**
- **Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.**
- **Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended herbicide solution directly to the weed.**
- **Care must be taken with all types of wipers to insure that the absorbent material does not become over-saturated, causing the herbicide to drip onto desirable vegetation.**
- **With all equipment, drain and clean wiper parts immediately after using this product, by thoroughly flushing with water.**

For Roller Applicators – Mix 0.33 to 0.67 litres of this product in 10 litres water to prepare a 3 to 7 percent solution. Roller speed should be maintained at 50 to 150 RPM.

For Wick or other Wiper Applicators – Mix 0.57 litres of this product in 2 litres of water to prepare a 22 percent solution.

9.13 AERIAL APPLICATION FOR WEED CONTROL WITH ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE PRIOR TO SEEDING OR AFTER SEEDING PRIOR TO CROP EMERGENCE IN ALL CROPS AND IN SUMMERFALLOW – WET FIELD CONDITIONS ONLY

Refer to the general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific instructions in this section.

RESTRICTED USE
AERIAL APPLICATION FOR WEED CONTROL PRIOR TO SEEDING ALL
CROPS AND IN SUMMERFALLOW

PRAIRIE PROVINCES ONLY
(including PEACE RIVER REGION OF B.C.)

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators and aerial application services approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patterning) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 – 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a ROUNDUP herbicide aerial application training course provided by Monsanto Canada Inc.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the *direct daily supervision* of a qualified pilot.

This product may be applied with aerial equipment only if ground equipment cannot be used due to flooded field conditions.

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide may be applied with aerial application equipment for control of certain annual grass and broadleaf weeds and the suppression or season long control of certain perennial weeds.

EXTREME CARE MUST BE TAKEN WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this

product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

Apply only by fixed-wing or rotary aircraft which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate(s) recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of spotter planes is recommended.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

Use Precautions

Use only when meteorological conditions at the treatment site allow for complete and even target coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the Monsanto Technical Support Line at 1-800-667-4944 or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume 30-100 litres per hectare.

Buffer Zones: Refer to Section 5.3 for required buffer zones.

DIRECTIONS FOR USE

THIS USE IS LIMITED TO SITUATIONS WHERE FIELD CONDITIONS ARE EXTREMELY WET SUCH THAT GROUND SPRAYERS (TRACTOR & FIELD SPRAYER, HIGH CLEARANCE SPRAYERS OR ANY KIND OF GROUND SPRAYER) CANNOT TRAVEL ACROSS THE FIELD TO MAKE EFFECTIVE WEED CONTROL APPLICATIONS.

DO NOT TANK MIX ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE WITH ANY OTHER PRODUCT WHEN APPLIED BY AERIAL APPLICATION.

Apply at appropriate weed stages. Consult tables in Section 7.1 and 8.1 for weeds, stages and rates.

For the best weed control results weeds should be actively growing.

Wet conditions can stress weeds and slow plant growth, therefore it is recommended to use the highest labelled rate for target weeds.

Prior to Seeding All Crops

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide may be applied with aerial application equipment for control of annual weeds (refer to Section 7.1) prior to seeding all crops. Apply 0.5-1.67 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide.

Summerfallow

Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide may be applied at 1.67-4.0 L/ha with aerial application equipment for control of annual weeds (refer to Section 7.1) and perennial weeds (refer to Section 8.1) in summerfallow situations.

10.0 NON-CROPLAND USES

INDUSTRIAL, RIGHTS-OF-WAY, RECREATIONAL, AND PUBLIC AREAS.

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

This product can be used to control annual and perennial weeds and woody brush and trees listed on this label in non-crop areas such as railroad, pipeline, highway, power and telephone rights-of-way, petroleum tank farms and pumping installations; roadsides; storage areas; lumberyards; fence rows; industrial plant sites; parking areas; school yards, parks, golf courses, other public areas; airports and similar industrial or non-crop areas.

NOTE: For all industrial, rights-of-way, recreational and public areas, repeat treatments may be necessary to control regeneration or new growth.

When applied as recommended under the conditions described, this product will control weeds in non-cropland areas as listed in the following table.

10.1 WEED CONTROL IN NON-CROPLAND AREAS WITH ROUNDUP WEATHERMAX WITH TRANSORB 2 TECHNOLOGY LIQUID HERBICIDE

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
Annual grasses and broadleaves	1.5-2.33	50-100	0.67	• Actively growing weeds.
Perennial Weeds				• Actively growing weeds.
Quackgrass	1.67 3.17-4.67	50-300 50-300	0.67 1.34	• Add 0.5% v/v of a recommended surfactant when using water volumes greater than 150 L (see section 8.2.2).
Canada Thistle (bud stage)	3.17-4.67	100-300	1.34	• Higher rate for long term

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
Purple Loosestrife	4	300-600	0.67-1.34 (or 22% for wiper application)	control and for heavy infestations. • See section 10.2.3 for instructions on purple loosestrife applications. • Summer through fall is optimum.
Other Perennials	4.67-8	100-300	1.34	
Brush and Trees Birch, Cherry, Poplar, Western Snowberry, Willow	2-4	100-300	0.67-1.34	• Summer through early fall (see section 10.2).
Maple, Raspberry/Salmonberry, Alder	4	100-300	1.34	• Late summer through fall. • Fall is optimum.
Turf Renovation Annual and perennial weeds	1.67-8	100-300	0.67-1.34	• Use higher end of the rate range for perennials.
Roadside Vegetation (1-2m wide along shoulders) Annual weeds (refer to tank mix sections on product labels for specific weeds controlled)	1) 0.5 – 0.67 + 1.25 – 2.5 L Vanquish Herbicide or 2) 0.5 – 0.67 + 0.30 L Vanquish Herbicide + 1.2 L 2,4-D amine 500	25-150	-	• Refer to “Annual Weed Control” table (section 7.1) for appropriate product rate for specific weeds. • For 2,4-D amine formulations with a different guarantee, adjust the rate accordingly. • No application to standing water.
Residual Control Annual and perennial weeds (the simazine component of this tank mixture will provide season long control of most germinating broadleaf weeds)	1.67 – 8 + 4.0 -9.0 L Simadex Flowable	200-400	-	• Do not apply to coarse, sandy or gravelly soil. One application per year. • Use according to the most restrictive label directions for each product in the mixture. • For other simazine formulations registered for industrial/ non-cropland

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
and grasses. It may also provide postemergent activity on certain annual weeds).				areas, use equivalent rates; i.e., 2.0 – 4.5 kg simazine/ha.

* For more information on rates, water volumes and application, refer to “**Annual and Perennial Weed Control**” (sections 7.1 and 8.1, respectively).

Vanquish Herbicide is a registered trademark of Syngenta group company.
Simadex is a registered trademark of Bayer.

10.2 APPLICATION INFORMATION FOR NON-CROPLAND USES

FOLIAR APPLICATIONS

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30 to 45 days for symptoms to develop on target species. Late season application may be made to species that have some autumn colors provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURF GRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

This product does not provide residual weed control. For subsequent weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

10.2.1 GROUND APPLICATIONS:

For all non-cropland uses

For woody brush and trees, apply 2 to 4 litres of this product per hectare. Use ground boom or boomless, or mist blower equipment, or apply as a 0.67 to 1.34 percent solution using hand held, high volume equipment. Apply as directed in the recommended volume of clean water to foliage of actively growing vegetation. Use the 4 litres per hectare rate for Maple, Alder and Willow* species, as well as for hard to control perennial weed species. (*suppression only).

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages.

10.2.2 PURPLE LOOSESTRIFE CONTROL

- DO NOT TREAT PLANTS OVER OPEN WATER. Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using hand held equipment, spray-to-wet.
- For wiper applications see section 9.12.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

10.3 SELECTIVE APPLICATION FOR ALL NON-CROPLAND USES

Selective equipment such as WIPER and ROLLER applicators can be used to control emerged weeds in non-crop areas and tree plantings. See “**Selective Equipment**” (section 9.12) for more information.

10.4 TURF GRASS

When applied as directed, under conditions described, this product controls most existing vegetation. Apply this product at rates specified in “**Weed Control in Non-Cropland Areas**” (section 10.1).

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth given in “**Weeds Controlled**” (sections 7.1 and 8.1, respectively). Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray and proper translocation into underground plant parts. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

For maximum control of existing vegetation, delay establishment to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. Desirable turfgrass may be established following the above procedures.

10.5 INJECTION APPLICATIONS -- FOR ALL NON-CROPLAND USES

Woody vegetation may be controlled by injection application of this product. Apply using suitable equipment, which must penetrate into living tissue, at a rate of at least 0.33 millilitres (either undiluted or 1:1 with water) per 5 centimetres tree diameter at breast height (DBH). The cuts should be spaced evenly around the tree and below all major branches. Application may be made at any time of year, except when cold temperatures prevent adequate penetration of injection equipment, or in the spring during periods of heavy sap flow. Control of tree species with tree diameters greater than 20 centimetres may not be acceptable at this rate.

Total control may not be evident for 1 to 2 years following treatment.

A partial list of species controlled includes:

Alder

Alnus spp.

Birch

Betula spp.

Cedar

Thuja spp.

Cherry

Prunus spp.

Douglas Fir

Pseudotsuga spp.

Hemlock

Tsuga spp.

Maple*

Acer spp.

Pine

Pinus spp.

Poplar

Populus spp.

Willow

Salix spp.

* This treatment may only provide suppression of Bigleaf Maple. Late fall applications will provide optimum suppression of Bigleaf Maple.

10.6 CUT STUMP APPLICATION

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Because the treatment uses a concentrated solution, application must be made using low-pressure equipment e.g., squirt bottle or similar device. This product must be applied immediately to the surface of the freshly cut stump i.e., within 5 minutes for optimum control at the prescribed rates. Only the cambial tissues of the cut surface should be treated. Apply the herbicide solution at a rate equivalent to at least 0.33 millilitres product for every 5 centimetres DBH. Do not cover the remaining area nor any exposed roots, as this product does not penetrate bark well. This treatment may be used at any time of year, except during periods of heavy sap flow or when low temperatures prevent solution application due to freezing. A water soluble colourant may be added to the solution as a means of indicating which surfaces have been treated. Total control may not be evident until 1 to 2 years after treatment.

See “**Injection Applications**” (section 10.5) of this label for a partial list of species controlled.

Monsanto Canada

Safety Data Sheet

Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name

Roundup WeatherMax® with Transorb® 2 Technology Liquid Herbicide

PCP Reg. No.

27487

Product use

Herbicide

Chemical name

Not applicable.

Synonyms

None.

Company

Monsanto Canada, 900 - One Research Road, Winnipeg, MB, R3T 6E3

Telephone: 204-985-1000 or 800-667-4944 **Fax:** 204-488-9599

E-mail: safety.datasheet@monsanto.com

Emergency numbers

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT Call CANUTEC - Day or Night: 613-996-6666 (collect calls accepted) or MONSANTO: 314-694-4000 (collect calls accepted).

FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

2. HAZARDS IDENTIFICATION

Emergency overview

Appearance and odour (colour/form/odour): Blue / Liquid, free from foreign materials / Odourless

|| CAUTION!
|| POISON
|| HARMFUL IF SWALLOWED
|| HARMFUL IF INHALED
|| CAUSES EYE IRRITATION
|| CAUSES SKIN IRRITATION

Potential health effects

Likely routes of exposure

Skin contact, eye contact, inhalation

Eye contact, short term

May cause temporary eye irritation.

Skin contact, short term

Irritating to skin.

Inhalation, short term

Harmful by inhalation.

Single ingestion

Harmful if swallowed.

Refer to section 11 for toxicological and section 12 for environmental information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

Potassium salt of N-(phosphonomethyl)glycine; {Potassium salt of glyphosate }

Composition

COMPONENT	CAS No.	% by weight (approximate)
Potassium salt of glyphosate	70901-12-1	48.8
Surfactant(s), water and minor formulating ingredients		51.2

The specific chemical identity is being withheld because it is trade secret information of Monsanto Company.

4. FIRST AID MEASURES

Use personal protection recommended in section 8.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

Eye contact

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Skin contact

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Inhalation

If inhaled, move person to fresh air. If person is not breathing, call emergency number or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

Ingestion

Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

Advice to doctors

This product is not an inhibitor of cholinesterase.

Antidote

Treatment with atropine and oximes is not indicated.

5. FIRE-FIGHTING MEASURES

Flash point

Does not flash.

Extinguishing media

Recommended: Water, foam, dry chemical, carbon dioxide (CO₂)

Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination.
Environmental precautions: see section 6.

Hazardous products of combustion

Carbon monoxide (CO), phosphorus oxides (PxOy), nitrogen oxides (NOx)

Fire fighting equipment

Self-contained breathing apparatus.

Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions

SMALL QUANTITIES:

Low environmental hazard.

LARGE QUANTITIES:

Minimise spread.

Keep out of drains, sewers, ditches and water ways.

Methods for cleaning up

SMALL QUANTITIES:

Absorb in earth, sand or absorbent material.

Sweep, scoop or vacuum to remove.

LARGE QUANTITIES:

Dig up heavily contaminated soil.

Refer to section 7 for types of containers.

Collect in containers for disposal.

Wash spill area with detergent and water.

Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

Handling

Do NOT taste or swallow.

Avoid contact with eyes, skin and clothing.

Avoid breathing vapour or mist.

When using do not eat, drink or smoke.

Wash hands thoroughly after handling or contact.

Thoroughly clean equipment after use.

Do not contaminate drains, sewers and water ways when disposing of equipment rinse water.

Refer to section 13 of the safety data sheet for disposal of rinse water.

Emptied containers retain vapour and product residue.

FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

Storage

Minimum storage temperature: -15 °C

Maximum storage temperature: 50 °C

Compatible materials for storage: stainless steel, fibreglass, plastic, aluminium

Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep only in the original container.

Keep container tightly closed in a cool, well-ventilated place.

Partial crystallization may occur on prolonged storage below the minimum storage temperature.
If frozen, place in warm room and shake frequently to put back into solution.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Potassium salt of glyphosate	No specific occupational exposure limit has been established.
Surfactant(s), water and minor formulating ingredients	No specific occupational exposure limit has been established.

Engineering controls

No special requirement when used as recommended.

Eye protection

If there is significant potential for contact:
Wear chemical goggles.
Applicators and other handlers must wear eye protection.

Skin protection

Wear chemical resistant gloves.
Applicators and other handlers must wear:
Wear coveralls over long-sleeved shirt and long pants.
If there is significant potential for contact:
Wear face shield.

Respiratory protection

If airborne exposure is excessive:
Wear respirator.
Full facepiece/hood/helmet respirator replaces need for chemical goggles.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Colour/colour range:	Blue
Odour:	Odourless
Form:	Liquid, free from foreign materials
Physical form changes (melting, boiling, etc.):	
Melting point:	Not applicable.
Boiling point:	No data.
Flash point:	Does not flash.
Explosive properties:	Upper explosion limit: Not applicable.; Lower explosion limit: Not applicable.
Auto ignition temperature:	Not applicable.
Specific gravity:	1.3573 @ 20 °C / 15.6 °C
Vapour pressure:	No significant volatility; aqueous solution.
Vapour density:	Not applicable.
Evaporation rate:	No data.

Dynamic viscosity:	No data.
Kinematic viscosity:	No data.
Density:	1.3573 g/cm ³ @ 20 °C
Solubility:	Water: Soluble
pH:	4.5 - 4.9 @ 67.7 g/l
Partition coefficient:	log Pow: -3.2 @ 25 °C (glyphosate)

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions of handling and storage.

Oxidizing properties

No data.

Materials to avoid/Reactivity

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

Self-accelerating decomposition temperature (SADT)

No data.

Hazardous polymerization

No data.

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Data obtained on similar products and on components are summarized below.

Similar formulation

Acute oral toxicity

Rat, LD50: > 5,000 mg/kg body weight

Practically non-toxic.

FIFRA category IV.

Acute dermal toxicity

Rat, LD50: > 5,000 mg/kg body weight

Practically non-toxic.

FIFRA category IV.

Skin irritation

Rabbit, 3 animals, OECD 404 test:

Days to heal: 14

Primary Irritation Index (PII): 2.2/8.0

Moderate irritation.

FIFRA category III.

Eye irritation

Rabbit, 3 animals, OECD 405 test:

Days to heal: 10

Moderate irritation.

FIFRA category III.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: > 1.20 mg/L

Slightly toxic.

FIFRA category III.

No mortality. For purposes of the inhalation test, product was artificially aerosolized. Since this material will not become aerosolized to a hazardous concentration during transport, it is classified as non-hazardous under the transportation regulations in accordance with 2.6.2.2.4.7(b) and (c) of the UN Recommendations on the Transport of Dangerous Goods.

Skin sensitization

Guinea pig, 3-induction Buehler test:

Positive incidence: 0 %

N-(phosphonomethyl)glycine; { glyphosate}

Mutagenicity

In vitro and in vivo mutagenicity test(s):

Not mutagenic.

Repeated dose toxicity

Rabbit, dermal, 21 days:

NOAEL toxicity: > 5,000 mg/kg body weight/day

Target organs/systems: none

Other effects: none

Rat, oral, 3 months:

NOAEL toxicity: > 20,000 mg/kg diet

Target organs/systems: none

Other effects: none

Chronic effects/carcinogenicity

Rat, oral, 24 months:

NOAEL toxicity: ~ 8,000 mg/kg diet

Target organs/systems: eyes

Other effects: decrease of body weight gain, histopathologic effects

NOEL tumour: > 20,000 ppm

Tumours: none

Toxicity to reproduction/fertility

Rat, oral, 2 generations:

NOAEL toxicity: 10,000 ppm

NOAEL reproduction: > 30,000 mg/kg diet

Target organs/systems in parents: none

Other effects in parents: decrease of body weight gain

Target organs/systems in pups: none

Other effects in pups: decrease of body weight gain

Effects on offspring only observed with maternal toxicity.

Developmental toxicity/teratogenicity

Rat, oral, 6 - 19 days of gestation:

NOAEL toxicity: 1,000 mg/kg body weight

NOAEL development: 1,000 mg/kg body weight

Other effects in mother animal: decrease of body weight gain, decrease of survival

Developmental effects: weight loss, post-implantation loss, delayed ossification

Effects on offspring only observed with maternal toxicity.

Rabbit, oral, 6 - 27 days of gestation:

NOAEL toxicity: 175 mg/kg body weight

NOAEL development: 175 mg/kg body weight

Target organs/systems in mother animal: none

Other effects in mother animal: decrease of survival

Developmental effects: none

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on similar products and on components are summarized below.

Similar formulation

Aquatic toxicity, fish

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, semi-static, LC50: 3.13 mg/L
Moderately toxic.

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 72 hours, static, EbC50 (biomass): 0.124 mg/L
Highly toxic.

Arthropod toxicity

Honey bee (*Apis mellifera*):

Contact, 48 hours, LD50: > 250 µg/bee
Practically non-toxic.

Honey bee (*Apis mellifera*):

Oral, 48 hours, LD50: > 238.8 µg/bee
Practically non-toxic.

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: > 10,000 mg/kg dry soil
Practically non-toxic.

Soil organism toxicity, microorganisms

Nitrogen and carbon transformation test:

40 L/ha, 28 days: Less than 25% effect on nitrogen or carbon transformation processes in soil.

Similar formulation

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 8.0 mg/L
Moderately toxic.

N-(phosphonomethyl)glycine; { glyphosate }

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 4,640 mg/kg diet
No more than slightly toxic.

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 4,640 mg/kg diet
No more than slightly toxic.

Bobwhite quail (*Colinus virginianus*):

Acute oral toxicity, single dose, LD50: > 3,851 mg/kg body weight
Practically non-toxic.

Bioaccumulation

Bluegill sunfish (*Lepomis macrochirus*):

Whole fish: BCF: < 1
No significant bioaccumulation is expected.

Dissipation

Soil, field:

Half life: 2 - 174 days
Koc: 884 - 60,000 L/kg
Adsorbs strongly to soil.

Water, aerobic:

Half life: < 7 days

13. DISPOSAL CONSIDERATIONS

Product

Keep out of drains, sewers, ditches and water ways.
Recycle if appropriate facilities/equipment available.
Burn in proper incinerator.
Follow all local/regional/national/international regulations.

Container

See the individual container label for disposal information.
Emptied containers retain vapour and product residue.
Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.
Empty packaging completely.
Triple or pressure rinse empty containers.
Do NOT contaminate water when disposing of rinse waters.
Ensure packaging cannot be reused.
Do NOT re-use containers.
Store for collection by approved waste disposal service.
Recycle if appropriate facilities/equipment available.
Follow all local/regional/national/international regulations.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

Not hazardous under the applicable DOT, ICAO/IATA, IMO, TDG and Mexican regulations.

15. REGULATORY INFORMATION

PCPA registered.

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.
Follow all local/regional/national/international regulations.
Please consult supplier if further information is needed.
In this document the British spelling was applied.
|| Significant changes versus previous edition.

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose),

NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE Pest Management Regulatory (PMRA)- APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by product labeling and provincial legislation, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the PMRA-approved label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, MONSANTO Company or any of its subsidiaries makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will MONSANTO Company or any of its subsidiaries be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

CAUTION

KEEP OUT OF REACH OF CHILDREN

READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Sentry[®] Herbicide

ACTIVE CONSTITUENTS: 525 g/kg IMAZAPIC
175 g/kg IMAZAPYR

GROUP	B	HERBICIDE
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For the pre-emergence control or suppression of certain annual grass and broadleaf weeds in imidazolinone herbicide tolerant barley, wheat (single gene) and canola; and for the early post-emergence control or suppression of certain annual grass and broadleaf weeds in imidazolinone herbicide tolerant canola and wheat (single gene) as specified in the DIRECTIONS FOR USE section of this label.

IMPORTANT: READ THE ATTACHED LEAFLET BEFORE USING THIS PRODUCT

Nufarm Australia Limited
ACN 004 377 780
103-105 Pipe Road, Laverton North Victoria 3026
Tel: (03) 9282 1000
nufarm.com.au

APVMA Approval No.: 67951/111406

Net Contents: 250g - 5kg

STORAGE AND DISPOSAL

Store in the closed, original container, in a dry, cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on-site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and deliver empty packaging for appropriate disposal to an approved waste management facility. If an approved waste management facility is not available bury the empty packaging 500mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Do not burn empty containers or product.

SAFETY DIRECTIONS

Will irritate the eyes and skin. Avoid contact with eyes and skin. When opening the container and preparing spray, wear elbow-length PVC gloves and face shield or goggles. If product in eyes, wash it out immediately with water. After each day's use, wash gloves and face shield or goggles. Wash hands after use. When tank-mixing with other products, also consult the safety directions for those products.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26.

ADDITIONAL STATEMENTS (WHS REGULATIONS 2011)

Causes serious eye damage. Wear protective gloves, clothing, eye and face protection. Wash hands and exposed skin thoroughly after handling. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

SAFETY DATA SHEET

For further information refer to the Safety Data Sheet (SDS), which can be obtained from your supplier or from the Nufarm website – nufarm.com.au

In case of emergency: Phone 1800 033 498 Ask for shift supervisor. Toll free 24 hours.

Conditions of sale

"Any provisions or rights under the Competition and Consumer Act 2010 or relevant state legislation which cannot be excluded by those statutes or by law are not intended to be excluded by these conditions of sale. Subject to the foregoing, all warranties, conditions, rights and remedies, expressed or implied under common law, statute or otherwise, in relation to the sale, supply, use or application of this product, are excluded. Nufarm Australia Limited and/or its affiliates ("Nufarm") shall not accept any liability whatsoever (including consequential loss), or

howsoever arising (including negligence) for any damage, injury or death connected with the sale, supply, use or application of this product except for liability which cannot be excluded by statute."

*Sentry is a registered trade mark owned or used under license by Nufarm Australia Limited.

BN / DOM / Barcode /

CAUTION

KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Sentry[®] Herbicide

ACTIVE CONSTITUENTS: 525 g/kg IMAZAPIC
175 g/kg IMAZAPYR

GROUP	B	HERBICIDE
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For the pre-emergence control or suppression of certain annual grass and broadleaf weeds in imidazolinone herbicide tolerant barley, wheat (single gene) and canola; and for the early post-emergence control or suppression of certain annual grass and broadleaf weeds in imidazolinone herbicide tolerant canola and wheat (single gene) as specified in the DIRECTIONS FOR USE section of this label.

READ COMPLETE DIRECTIONS FOR USE BEFORE USING THIS PRODUCT

Nufarm Australia Limited
ACN 004 377 780
103-105 Pipe Road, Laverton North Victoria 3026
Tel: (03) 9282 1000
nufarm.com.au

APVMA Approval No.: 67951/111406

DIRECTIONS FOR PRE-EMERGENCE USE

RESTRAINTS:

DO NOT apply to barley, wheat or canola varieties that lack imidazolinone tolerance.

DO NOT apply by aircraft.

SITUATION	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Imidazolinone herbicide tolerant Barley, Canola and Wheat (single gene) varieties only	<p>Barley grass (<i>Hordeum</i> spp.) Brome grass (<i>Bromus</i> spp.) Climbing buckwheat (<i>Fallopia convolvulus</i>) Hedge mustard (<i>Sisymbrium officinale</i>) Indian hedge mustard (<i>S. orientale</i>) Wild radish (<i>Raphanus raphanistrum</i>) Wireweed (<i>Polygonum aviculare</i>)</p> <p>Suppression of the following weeds: Annual ryegrass (<i>Lolium rigidum</i>) Capeweed (<i>Arctotheca calendula</i>) Clover (<i>Trifolium</i> spp.) Fumitory (<i>Fumaria</i> spp.) Long storksbill (<i>Erodium botrys</i>) Paterson's curse (<i>Echium plantagineum</i>) Phalaris (<i>Phalaris</i> spp.) Volunteer barley (<i>Hordeum vulgare</i> - other than imidazolinone herbicide tolerant barley varieties) Volunteer canola (<i>Brassica napus</i> - other than imidazolinone herbicide tolerant canola varieties) Volunteer wheat (<i>Triticum aestivum</i> - other than imidazolinone herbicide tolerant wheat varieties) Volunteer oats (<i>Avena sativa</i>) Wild oats (<i>Avena</i> spp.)</p>	<p>40-50 g/ha</p> <p>Refer to Compatibility Section and Critical Comments for advice and rates of Triflur X[®], Avadex[®] Xtend, Avadex[®] Xtra or Sakura[®] 850WG Herbicide.</p>	<p>DO NOT apply Sentry (to a crop) more than once in a growing season.</p> <p>Where Sentry is used pre-emergence followed by a post-emergent treatment with another imidazolinone-based herbicide or any other Group B herbicide to control grasses in cereals or brassicaceous weeds in canola, only sow an imidazolinone herbicide tolerant crop the following season.</p> <p>Ensure follow crop comments and restrictions on the label are consulted prior to use.</p> <p>Sentry may be applied up to and immediately prior to planting with incorporation by the sowing process using knife/blade points and press wheels.</p> <p>Best weed control will be achieved when applied to weed free, moist, friable soil immediately prior to sowing.</p> <p>Sentry can be applied to dry soil but will not be active until follow up rain disperses the product to the root zone of germinating weeds. Applying Sentry to dry soil when weeds are germinating from depth can impair performance. A 15-20 mm rainfall event received within a fortnight of application will limit this risk.</p> <p>The low rate of Sentry may not provide adequate control when used in heavy stubble covers, on high weed density burdens and in heavier soil types. Tank mixing with a suitable pre-emergence grass herbicide is recommended (see Compatibility section).</p> <p>Applying Sentry in tank mix with pre-emergence grass herbicides will improve grass control, particularly Annual ryegrass, and the control of some broadleaf weed species. This is especially applicable when using Sentry at 40g/ha. Choice of the mixing partner regime depends upon weed spectrum and site conditions. DO NOT apply a Sentry tank mix in a manner contrary to advice provided on the label of the mixing partner.</p> <p>Wherever possible, an appropriate follow up post-emergence herbicide regime using alternative modes of action herbicides is recommended for weed seed set management.</p> <p>Harvest Weed Seed Set Control (HWSSC) measures are recommended in all situations in order to limit the survival of Group B resistant seeds, but are essential where Group B based herbicides, including Sentry, have been applied pre- and post-emergence. See Best Management Practice.</p>

DIRECTIONS FOR POST-EMERGENCE USE

RESTRAINTS:

DO NOT apply to canola and wheat varieties that lack imidazolinone tolerance.

DO NOT apply to crops or weeds which are suffering moisture stress (waterlogged or drought affected), insect, disease or nutritional disorders, are frost affected (or if frosts are imminent) or stressed from previous herbicide or foliar fertiliser treatment.

DO NOT apply by aircraft.

CROP	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Imidazolinone herbicide tolerant Canola varieties only	Hedge mustard (<i>Sisymbrium officinale</i>) Indian hedge mustard (<i>S. orientale</i>) London rocket (<i>S. irio</i>) Shepherd's purse (<i>Capsella bursa-pastoris</i>) Wild radish (<i>Raphanus raphanistrum</i>) Wild turnip (<i>Brassica tournefortii</i>)	20g/ha plus Supercharge® Elite at 0.5L/100L spray volume Refer to Compatibility Section and Critical Comments for advice and rates of Archer® Herbicide and Havoc® Herbicide.	DO NOT use a post emergent application if a pre-emergent Sentry application was applied. DO NOT apply more than once per season to any one crop. Ensure follow-crop comments and restrictions on the label are consulted prior to use. Apply to crops in the 2-6 leaf stage. Apply early post-emergence to actively growing grass weeds in the 3-5 leaf stage (Z13-15) and broadleaf weeds in the 2-4 leaf stage (20g rate) or grass weeds in the 3 leaf to 2 tillers stage (Z13-22) and broadleaf weeds in the 2-6 leaf stage (40 or 55g rate).
	Above weeds plus: Amsinckia (<i>Amsinckia</i> spp.) Barley grass (<i>Hordeum leporinum</i>), Bedstraw (<i>Galium tricornutum</i>) Brome grass (<i>Bromus</i> spp.) Climbing buckwheat (<i>Fallopia convolvulus</i>) Clover (<i>Trifolium</i> spp.) Corn gromwell (<i>Buglossoides arvense</i>) Crassula (<i>Crassula</i> spp.) Dead nettle (<i>Lamium amplexicaule</i>) Double gee (<i>Emex australis</i>) Fumitory (<i>Fumaria</i> spp.) Paterson's curse (<i>Echium plantagineum</i>) Phalaris (<i>Phalaris</i> spp.) Toadrush (<i>Juncus bufonius</i>) Volunteer barley (<i>Hordeum vulgare</i> - other than varieties with imidazolinone-tolerance) Volunteer canola (<i>Brassica napus</i> - other than varieties with imidazolinone-tolerance) Volunteer wheat (<i>Triticum aestivum</i> - other than varieties with imidazolinone-tolerance) Wild oats/ Volunteer oats (<i>Avena</i> spp.) Wireweed (<i>Polygonum aviculare</i>) Suppression only: Annual ryegrass# (<i>Lolium rigidum</i>) Medics (<i>Medicago</i> spp.) Silver grass (1-2 leaf only) (<i>Vulpia</i> spp.) Storksbill (<i>Erodium</i> spp.) Volunteer vetch (<i>Vicia</i> spp.)	40 or 55g/ha plus Supercharge Elite at 0.5L/100L spray volume Refer to Compatibility Section and Critical Comments for advice and rates of Archer® Herbicide and Havoc® Herbicide.	Where Sentry herbicide is used alone and annual ryegrass is a significant weed in the total weed population, use the 55g/ha rate to achieve suppression. Weeds will either be killed or will be stunted and uncompetitive with the crop. Sentry is physically and biologically compatible with Archer Herbicide and Havoc Herbicide, both in two- way and three-way mixes. Havoc Herbicide aids in the control of selected grass species (refer to the Havoc label). When these weeds require control apply a tank mix of Sentry and Havoc using the recommended label rate of Havoc. 175mL/ha of Havoc will normally be sufficient to achieve good control of light populations. Use higher rates when grasses are primary weeds in the paddock, and when their growth stage requires it, to ensure highest levels of control. When mixing with Havoc Herbicide, use 1L/100L spray volume of Supercharge Elite. Archer Herbicide aids in the control of legumes, prickly lettuce, capeweed and other thistle-like weed species. When these weeds require control apply a tank mix of Sentry and Archer using the recommended label rate of Archer. Rates of Archer above 150mL/ha can impair grass control. The addition of Havoc Herbicide at 175mL/ha to the tank mix will overcome this antagonism. (Refer to the Compatibility section of this label and the Havoc and Archer labels for further details of use). #Where Group A and/or Group B – resistant ryegrass is known to be present or ryegrass populations in excess of 200 plants per m ² are expected, an application of Rifle® 440 Herbicide or Trifluralin should be made prior to sowing. DO NOT use Sentry at 40-55g/ha on shallow, strongly duplex soils in Western Australia.

CROP	WEEDS CONTROLLED	RATE	CRITICAL COMMENTS
Imidazolinone herbicide tolerant Wheat (single gene) varieties only	Hedge mustard (<i>Sisymbrium officinale</i>) Indian hedge mustard (<i>S. orientale</i>) London rocket (<i>S. irio</i>) Shepherd's purse (<i>Capsella bursa-pastoris</i>) Wild radish (<i>Raphanus raphanistrum</i>) Wild turnip (<i>Brassica tournefortii</i>)	20g/ha plus Supercharge Elite at 0.5L/100L spray volume	DO NOT use a post emergent application if a pre-emergent Sentry application was applied. DO NOT apply more than once per season to any one crop. Ensure follow-crop comments and restrictions on the label are consulted prior to use. Apply to crops in the 4 leaf (Z14) to commencement of flag leaf (Z37) stage.
	Above weeds plus: Amsinckia (<i>Amsinckia</i> spp.) Barley grass (<i>Hordeum leporinum</i>) Bedstraw (<i>Galium tricornutum</i>) Brome grass (<i>Bromus</i> spp.) Climbing buckwheat (<i>Fallopia convolvulus</i>) Clover (<i>Trifolium</i> spp.) Corn gromwell (<i>Buglossoides arvensis</i>) Crassula (<i>Crassula</i> spp.) Dead nettle (<i>Lamium amplexicaule</i>), Double gee (<i>Emex australis</i>) Fumitory (<i>Fumaria</i> spp.) Paterson's curse (<i>Echium plantagineum</i>) Phalaris (<i>Phalaris</i> spp) Toadrush (<i>Juncus bufonius</i>) Volunteer barley (<i>Hordeum vulgare</i> - other than varieties with imidazolinone-tolerance) Volunteer canola (<i>Brassica napus</i> - other than varieties with imidazolinone-tolerance) Volunteer wheat (<i>Triticum aestivum</i> - other than varieties with imidazolinone-tolerance) Wild oats/Volunteer oats (<i>Avena</i> spp.) Wireweed (<i>Polygonum aviculare</i>) Suppression only: Annual ryegrass# (<i>Lolium rigidum</i>), Medics (<i>Medicago</i> spp.), Silver grass (1-2 leaf only) (<i>Vulpia</i> spp.), Storksbill (<i>Erodium</i> spp.), Volunteer vetch (<i>Vicia</i> spp.)	40g/ha plus Supercharge Elite at 0.5L/100L spray volume	Apply early post-emergence to actively growing grass weeds in the 3-5 leaf stage (Z13-15) and broadleaf weeds in the 2-4 leaf stage (20g rate) or grass weeds in the 3 leaf to 2 tillers stage (Z13-22) and broadleaf weeds in the 2-6 leaf stage (40g rate). Weeds will either be killed or will be stunted and uncompetitive with the crop. #Where ALS resistant ryegrass is known to be present or ryegrass populations in excess of 200 plants per m ² are expected, an application of a Group D herbicide, such as Rifle 440 Herbicide or Trifluralin, should be made prior to sowing. DO NOT use Sentry at 40g/ha on shallow, strongly duplex soils in Western Australia.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

WITHHOLDING PERIODS

Imidazolinone herbicide tolerant Barley and Canola:

DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 6 WEEKS AFTER APPLICATION.

HARVEST FOR GRAIN: NOT REQUIRED WHEN USED AS DIRECTED.

Imidazolinone herbicide tolerant Wheat:

DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 4 WEEKS AFTER APPLICATION.

HARVEST FOR GRAIN: NOT REQUIRED WHEN USED AS DIRECTED.

GENERAL INSTRUCTIONS

Sentry® Herbicide is for use pre-emergence in imidazolinone herbicide tolerant barley, wheat (single gene) and canola varieties only and for use post emergence in imidazolinone herbicide tolerant canola and wheat (single gene) varieties. Varieties with imidazolinone herbicide tolerance are those which have been bred specifically to tolerate imidazolinone herbicides. Sentry is an imidazolinone herbicide combination that provides both soil and foliar activity. Soil activity can be variable when dry soil conditions prevail following application because the product is not freely available to weeds. Best pre-emergence weed control will be achieved when soil moisture at or soon after application is good allowing the roots of germinating weed seedlings to take up the herbicide. Best post-emergence weed control will be achieved when application is made to young actively growing weeds. The pre-emergence use of Sentry will assist crop establishment and protect yield potential but may not preclude follow-up post-emergence weed control. When applied post-emergence Sentry must be mixed with Supercharge Elite as per the Directions for Use. Weeds treated post-emergence will either die or will remain stunted and will not compete with the crop. Vigorous crop growth will assist in suppressing weeds not completely killed or germinating later.

CROP SAFETY

This product may, in some circumstances, lead to transient crop yellowing and temporary slowing of growth but plants soon recover and yield is unaffected. This effect may be more pronounced when the product is used under poor growth conditions. DO NOT use this product on any canola or cereal varieties other than imidazolinone herbicide tolerant varieties. Severe crop damage will result to any other canola or cereal varieties.

Spray overlapping can heighten crop injury and can be severe in Clearfield* STL and Clearfield* JNZ wheat varieties.

MIXING

Sentry is a water dispersible granule formulation. Part-fill the spray tank with water, then with agitator running, add the required amount of product. **Once completely dissolved** add the required quantities of recommended products, in the correct mixing order, whilst filling the remainder of the tank. For large tank loads requiring large amounts of Sentry, or in situations where agitation is insufficient, consider pre-mixing Sentry and then adding the pre-mix to the spray tank.

APPLICATION

Generally, apply in a minimum 70L water per hectare. For post-emergence situations where grass weed populations exceed 200 plants per m², apply in a minimum of 100L water per hectare. When used alone post-emergence, Sentry Herbicide should be applied a minimum of two hours before rainfall or overhead irrigation. In mixtures with Archer or Havoc, application should be made a minimum of three or six hours (as per advice for these products) before rainfall or overhead irrigation.

EQUIPMENT CLEAN-UP

Thoroughly flush all spray equipment with water following the use of Sentry and before use with other products. After Sentry has been tank mixed with other products ensure that all spray equipment is additionally cleaned according to recommendations for the tank mix partners before using on sensitive crops.

COMPATIBILITY

Sentry® Herbicide is compatible with the herbicides, insecticides and adjuvants as listed in the following table. Other simultaneous mixes have not been tested.

HERBICIDES	INSECTICIDES	ADJUVANTS [#]
Archer® (clopyralid) Alliance® (paraquat) Revolver® (diquat) Avadex® Xtend (trilalate) Avadex® Xtra (trilalate) Factor® (butoxydim) Gladiator® OptiMAX (glyphosate) Havoc® (clethodim) Sakura* 850WG Herbicide (pyroxasulfone) Shirquat® 250 (paraquat) Rifle® 440 Herbicide (pendamethalin) Triflur X® (trifluralin) Trifluralin weedmaster® DST (glyphosate)	Astound® Duo (alpha-cypermethrin) Dimethoate Le-Mat* (omethoate)	Banjo® Hasten* Kwickin* Supercharge® Elite

When applying Sentry pre-emergence tank mixed with alternate mode of action pre-emergent herbicides, the following options are suggested based on weed profile and conditions:

- i) Triflur X at up to 3 L/ha,
- ii) Avadex Xtend at 1.3L/ha for wild oats control or
- iii) Triflur X at up to 2L/ha plus Avadex Xtend at up to 1.7L/ha.

Tank mixes with grass herbicides are recommended as a sound herbicide resistance management strategy but are encouraged when a high grass weed burden is expected or when Group B resistance is suspected. These mixes can also assist broadleaf weed control. Tank mixtures of Sentry and these various grass herbicides can be applied with the knockdown herbicides and insecticides indicated but more complex mixes have not been tested.

When applying Sentry post-emergence tank mixed with Archer or Havoc use 150 – 200mL/ha Archer (depending on legume and composite weed burden) and 175 – 500mL/ha Havoc (depending on grass burden and Group A resistance status). When applying Sentry with a mix of Archer and Havoc note that Archer can impact on grass control and should not be used at 200mL/ha with low rates of Havoc.

DO NOT tank mix with foliar fertilisers.

RESISTANT WEEDS WARNING

GROUP	B	HERBICIDE
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Sentry Herbicide is a member of the Imidazolinone group of herbicides. The product has the inhibitors-of-acetolactate-synthase (ALS) mode of action. For weed resistance management, the product is a Group B herbicide. Some naturally-occurring weed biotypes resistant to the product and other Group B herbicides may exist through normal genetic variability in any weed population. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds will not be controlled by this product or other Group B herbicides. Since the occurrence of resistant weeds is difficult to detect prior to use, Nufarm Australia Limited accepts no liability for any losses that may result from failure of this product to control resistant weeds.

BEST MANAGEMENT PRACTICE (BMP) PROGRAM

Sound agronomic practices including the practice of integrated weed management and Harvest Weed Seed Set Control (HWSSC) will optimise the performance of Imidazolinone herbicide tolerant crops and minimise the potential for the development of Group B herbicide resistance in weed populations.

Whether using Sentry pre-emergence or post-emergence or whether integrating its use with another Group B herbicide, use herbicides with alternative mode of action, either in tank mix or sequentially, to alleviate selective pressures. Where two Group B treatments have been applied to a crop ensure HWSSC techniques are practiced. Avoid allowing surviving weeds to set seed.

Consult a Nufarm representative in regard to BMP prior to using Sentry, especially when growing an Imidazolinone herbicide tolerant crop for the first time or when paddocks require an imidazolinone or Group B herbicide treatment following the use of Sentry pre-emergence. Implementation of the BMP is an essential part of herbicide resistance management.

FOLLOW CROPS

This product is broken down in the soil by microbes in wet, aerobic conditions. Under conditions which DO NOT favour breakdown, such as impoverished soils low in organic matter, non-wetting sands, anaerobic situations such as waterlogging and prolonged dry periods, soil residues will persist longer and may affect susceptible follow crops. Otherwise normally safe residue levels may still affect follow crops when soil nutrition is low or marginal, or when drought conditions or cold and very wet soil conditions prevail, or when soil pathogens or nematodes are present as these situations will add stress to the crops. As environmental and agronomic factors make it impossible to eliminate all risks associated with this product, rotational crop injury is always possible. Consult your local Nufarm representative for advice should you have any concerns.

Consult the table below for minimum re-cropping intervals for a variety of commonly sown crops.

Where Sentry is used pre-emergence and followed with a post-emergence treatment of another imidazolinone-based herbicide, or any other Group B herbicide, only sow an imidazolinone herbicide tolerant crop the following season.

Additional advice is provided below the table in regard to growing conventional (non-imidazolinone tolerant) cereals the Winter after using Sentry.

When planning to plant legumes the Winter after using Sentry, advice should be sought from a Nufarm representative if rainfall is below 150mm prior to Autumn.

In calculating rainfall, place greater emphasis on rain received from application up to the end of Spring and lesser emphasis on break rains. If rainfall from application to the end of Spring is less than 200mm and if single isolated heavy Summer and Autumn falls and break rains are required to achieve rainfall targets, it may not be safe to sow non-Imidazolinone herbicide tolerant cereals within 10 months of application. Consult your local Nufarm representative for advice.

Note: When the intention is to grow cereals on Imidazolinone herbicide tolerant canola stubble (treated with Sentry) self-sown canola volunteers must be removed before they mature beyond 2-leaf, all macro and micro-nutrients must be maintained at levels necessary to grow the planned crops, and sulfonyleureas must not be used.

The following minimum re-cropping intervals (months after application) should be observed.

Sentry rate used	Replant interval – Months after application	Follow Crops
20, 40, 50 and 55g/ha	0	Imidazolinone herbicide tolerant crops only
20 and 40g/ha	8	Chickpeas, Faba beans, Field peas, Lucerne, Lupins, Pasture legumes, Vetch, Oats, <input type="checkbox"/> Triticale, <input type="checkbox"/> Barley, <input type="checkbox"/> Wheat
20 and 40g/ha	22	Safflower
50 and 55g/ha	8	Chickpeas, Faba beans, Field peas, <input type="checkbox"/> Triticale, <input type="checkbox"/> Barley, <input type="checkbox"/> Wheat
50 and 55g/ha	22	Lucerne, Lupins, Oats, Pasture legumes, Safflower, Vetch
20, 40, 50 and 55g/ha	34	All other crops including conventional, TT and RR canola varieties

The following additional requirements apply if it is intended to sow conventional (non-imidazolinone herbicide tolerant) cereals the Winter season following the use of Sentry:

- DO NOT use Sentry at rates above 20g/ha in areas where rainfall from spraying to sowing non-imidazolinone herbicide tolerant cereals is expected to be below 150mm.

- DO NOT use Sentry at 40g/ha or higher in areas where rainfall from spraying to sowing non-imidazolinone herbicide tolerant cereals is expected to be below 250mm.
- DO NOT use Sentry at 50 – 55g/ha in areas where rainfall from spraying to sowing non-imidazolinone herbicide tolerant cereals is expected to be below 350mm.
- DO NOT apply Sentry later than the end of August (end of July in Western Australia) unless it is intended to grow an imidazolinone herbicide tolerant crop the following year.
- DO NOT use Sentry at 40-55g/ha on shallow, strongly duplex soils unless Imidazolinone herbicide tolerant crops are sown the following year.
- If Sentry is applied pre emergence followed by a post-emergent application of another Imidazolinone herbicide, sow only an Imidazolinone herbicide tolerant crop the following year regardless of the total load of Sentry applied.
- DO NOT use Sentry above 20g/ha in the lower Great Southern area of Western Australia, nor rates above 40g/ha anywhere in Western Australia unless it is intended to grow an Imidazolinone herbicide tolerant crop the following year.
- **If expected rainfall is not received following use of Sentry, or the rainfall pattern is inappropriate, consult a Nufarm representative before planting conventional (non-imidazolinone herbicide tolerant) cereal crops.**

RE-ENTRY PERIOD for Sentry PLUS Archer or Havoc

When tank-mixing Sentry with Archer or Havoc refer to the labels of these products for re-entry advice.

PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS

DO NOT apply under weather conditions, or from spraying equipment, that may cause spray to drift onto nearby susceptible plants/crops, cropping lands or pastures.

DO NOT spray within 50m of wetlands or waterways.

DO NOT allow spray overlapping as crop injury may occur.



spraywisedecisions.com.au is an online weather forecasting program and is recommended for use when planning your pesticide application.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

DO NOT contaminate streams, rivers or waterways with the chemical or used containers.

STORAGE AND DISPOSAL

Store in the closed, original container, in a dry, cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on-site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and deliver empty packaging for appropriate disposal to an approved waste management facility. If an approved waste management facility is not available bury the empty packaging 500mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Do not burn empty containers or product.

SAFETY DIRECTIONS

Will irritate the eyes and skin. Avoid contact with eyes and skin. When opening the container and preparing spray, wear elbow-length PVC gloves and face shield or goggles. If product in eyes, wash it out immediately with water. After each day's use, wash gloves and face shield or goggles. Wash hands after use. When tank-mixing with other products, also consult the safety directions for those products.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 131126.

ADDITIONAL STATEMENTS (WHS REGULATIONS 2011)

Causes serious eye damage. Wear protective gloves, clothing, eye and face protection. Wash hands and exposed skin thoroughly after handling. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

SAFETY DATA SHEET

For further information refer to the Safety Data Sheet (SDS), which can be obtained from your supplier or from the Nufarm website – nufarm.com.au

In case of emergency: Phone 1800 033 498 Ask for shift supervisor. Toll free 24 hours.

Conditions of sale

"Any provisions or rights under the Competition and Consumer Act 2010 or relevant state legislation which cannot be excluded by those statutes or by law are not intended to be excluded by these conditions of sale. Subject to the foregoing, all warranties, conditions, rights and remedies, expressed or implied under common law, statute or otherwise, in relation to the sale, supply, use or application of this product, are excluded. Nufarm Australia Limited and/or its affiliates ("Nufarm") shall not accept any liability whatsoever (including consequential loss), or howsoever

arising (including negligence) for any damage, injury or death connected with the sale, supply, use or application of this product except for liability which cannot be excluded by statute."

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* Other trade marks.

Sentry

SECTION 1. IDENTIFICATION

Product Identifier	Sentry
Other Means of Identification	5100
Recommended Use	Sanitizer.
Restrictions on Use	No information available.
Manufacturer/Supplier Identifier	Sunburst Chemicals, Inc., 220 W. 86th St., Bloomington, MN, 55420, 952-884-3144
Emergency Phone No.	Emergency Telephone Number, 1-866-303-6943
SDS No.	0003

SECTION 2. HAZARD IDENTIFICATION

Classification

Acute toxicity (Oral) - Category 3; Skin corrosion - Category 1B; Serious eye damage - Category 1

Label Elements



Hazard Statement(s):
Danger

Hazard Statement(s):
Harmful if swallowed or in contact with skin.
Causes severe skin burns and eye damage.

Precautionary Statement(s):
Prevention:
Wash hands and skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

General Advice
IF exposed or concerned: Get medical attention/advice

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Immediately call a POISON CENTRE or doctor.

Skin

IF ON SKIN: Wash with plenty of water.
Take off contaminated clothing and wash it before reuse.
If skin irritation occurs: Get medical advice/attention.
Call a POISON CENTRE or doctor if you feel unwell.

Inhalation

IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.

Ingestion

IF SWALLOWED: Immediately call a POISON CENTRE or doctor.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage:

Store locked up.

Disposal:

Dispose of contents and container in accordance with local, regional, national and international regulations.

Other Hazards

Not applicable.

PRODUCT AT USE DILUTION

Classification Category of Use Dilution:
Acute toxicity (Oral) - Category 4.

Signal Word Warning

Hazard Statements

Harmful if swallowed

Precautionary Statement(s):

Prevention:

Wash hands and skin thoroughly after handling.
Wear protective gloves / protective clothing / eye protection / face protection

General Response:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, Get medical advice/attention.
IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse.

Storage:

Store in accordance with local regulations.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	%	Other Identifiers
Quaternary ammonium compounds, C12-14-alkyl[(ethylphenyl)methyl]dimethyl, chlorides	85409-23-0	19-21	
Alkylbenzyltrimethylammonium chloride	68391-01-5	19-21	
Urea	57-13-6	50-70	

Notes

PRODUCT AT USE DILUTION

Contains ingredients listed above at weight % between 75 and 200 ppm for each individual quat.

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Move to fresh air. If breathing is difficult, give oxygen. If symptoms persist, call a physician.

Skin Contact

Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes. Get medical advice or attention if you feel unwell or are concerned.

Eye Contact

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open. If eye irritation persists, get medical advice or attention.

Ingestion

Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

First-aid Comments

Get medical advice or attention if you feel unwell or are concerned.

PRODUCT AT USE DILUTION

EYE CONTACT:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, Get medical advice/attention.

SKIN CONTACT:

Wash off immediately with plenty of water for at least 15 minutes. Use mild soap if available. Get medical attention if irritation develops and persists.

INHALATION:

Get medical attention if symptoms occur.

INGESTION:

Rinse mouth. Get medical attention if symptoms occur.

Most Important Symptoms and Effects, Acute and Delayed

None known.

Immediate Medical Attention and Special Treatment

Special Instructions

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Water. Carbon dioxide (CO 2). Dry chemical.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Product

Not sensitive to static discharge.

Not sensitive to mechanical impact.

Special Protective Equipment and Precautions for Fire-fighters

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As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Avoid contact with skin, eyes and clothing. Do not breathe spray mist. Ensure adequate ventilation. Use personal protective equipment. If spilled, take caution, as material can cause surfaces to become slippery.

Environmental Precautions

Collect spillage. Dispose of contents/container to an approved waste disposal plant. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Avoid release to the environment. See Section 12 for additional Ecological Information.

Methods and Materials for Containment and Cleaning Up

Collect and reuse if possible. Following product recovery, flush area with water.

Other Information

PRODUCT AT USE DILUTION

Personal precautions, protective equipment and emergency procedures:

Avoid contact with skin, eyes and clothing. Do not breathe spray mist. Ensure adequate ventilation. Use personal protective equipment. Solution can cause surfaces to become slippery

Environmental precautions:

Avoid release to the environment. Rinse or mop up use solutions. Solutions may be flushed down sanitary sewer drains.

Methods and materials for containment and cleaning up:

Stop leak if safe to do so. Contain spillage, and then collect with noncombustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Do not eat, drink or smoke when using this product, or its use solutions.

Conditions for Safe Storage

Keep container tightly closed. Keep container closed when not in use. Keep out of the reach of children.

PRODUCT AT USE DILUTION

Precautions for Safe Handling:

Avoid contact with skin and eyes. Wash hands thoroughly after handling.

Conditions for Safe Storage:

Keep out of reach of children. Store in suitable labeled containers.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A5 = Not suspected as a human carcinogen.

Appropriate Engineering Controls

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Provide eyewash in work area, if contact or splash hazard exists.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Rubber or vinyl gloves recommended when handling solid chemicals or their use solutions.

Respiratory Protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	White.
Odour	Ammonia-like
Odour Threshold	Not available
pH	Not available
Melting Point/Freezing Point	104 °C (220 °F) (melting); Not applicable (freezing)
Initial Boiling Point/Range	Not available
Flash Point	Not available
Evaporation Rate	Not applicable
Flammability (solid, gas)	Not applicable
Upper/Lower Flammability or Explosive Limit	Not applicable (upper); Not applicable (lower)
Vapour Pressure	Not applicable
Vapour Density (air = 1)	Not applicable
Relative Density (water = 1)	Not available
Solubility	Soluble in water; Not available (in other liquids)
Partition Coefficient, n-Octanol/Water (Log Kow)	Not applicable
Auto-ignition Temperature	Not applicable
Decomposition Temperature	Not available
Viscosity	Not applicable (kinematic); Not applicable (dynamic)
Other Information	
Physical State	Solid
Use Dilution	Use Dilution is 7.5 to 8.5
VOC Content	VOC Content (%) = 0%

SECTION 10. STABILITY AND REACTIVITY

Reactivity

None known.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

None expected under normal conditions of storage and use.

Conditions to Avoid

None known.

Incompatible Materials

None known.

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Hazardous Decomposition Products

None known.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Eye contact; skin contact.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Quaternary ammonium compounds, C12-14-alkyl[(ethylphenyl)methyl]dimethyl, chlorides	Not available	344 mg/kg (rat)	3340 mg/kg (rabbit)

LC50: No information was located.

LD50 (oral): No information was located.

LD50 (dermal): No information was located.

Skin Corrosion/Irritation

Skin contact with corrosive substances can cause skin burns.

Serious Eye Damage/Irritation

Eye contact with corrosive substances can cause eye burns.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

May cause irritation of respiratory tract.

Ingestion

Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Aspiration Hazard

No information was located.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

No information available.

Respiratory and/or Skin Sensitization

No information available.

Carcinogenicity

Not a carcinogen.

Reproductive Toxicity

Development of Offspring

No information was located.

Sexual Function and Fertility

No information was located.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

Not mutagenic.

Interactive Effects

No information was located.

Other Information

PRODUCT AT USE DILUTION

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Inhalation: May cause irritation of respiratory tract.

Eye Contact: May cause skin irritation.

Skin Contact: May cause eye irritation.

Ingestion: Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhea.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life.

Persistence and Degradability

No information available.

Bioaccumulative Potential

No information available.

Mobility in Soil

Studies are not available.

Other Adverse Effects

There is no information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose of contents and container in accordance with local, regional, national and international regulations.

SECTION 14. TRANSPORT INFORMATION

Not regulated under Canadian TDG regulations. Not regulated under US DOT Regulations.

Environmental Hazards Not applicable

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

All ingredients are listed on the DSL/NDSL.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are listed on the TSCA Inventory.

Additional USA Regulatory Lists

SARA Title III - Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does contain chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals.com The hazard information required on the pesticide label is reproduced in Section 2,

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Hazards Information, of this Safety Data Sheet. The pesticide label also includes other important information, including direction for use.

SARA Title III - Section 311/312:

Acute Health Hazard	Yes	
Chronic Health Hazard	No	
Fire Hazard	No	
Sudden Release of Pressure Hazard		No
Reactive Hazard		No

California Proposition 65
This product contains no Proposition 65 chemicals.

U.S. EPA Label Information

EPA Pesticide Registration Number 670 - 1.

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.).

SECTION 16. OTHER INFORMATION

NFPA Rating **Health - 3** **Flammability - 0** **Instability - 0**

SDS Prepared By SunBurst Chemicals

Phone No. 952-884-3144

Date of Preparation October 04, 2017

Date of Last Revision June 27, 2016

Revision Indicators Update using CanWrite

Additional Information -----
PRODUCT AT USE DILUTION

NFPA Rating Health – 1 Flammability - 0 Instability – 0

GROUP	2	HERBICIDE
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SIERRA[®] 70 WDG Herbicide
70% WATER DISPERSIBLE GRANULAR HERBICIDE

AGRICULTURAL

FOR POSTEMERGENCE APPLICATION ON SPRING WHEAT (INCLUDING DURUM WHEAT) FOR CONTROL OF WILD OAT, GREEN FOXTAIL, VOLUNTEER TAME OAT AND CERTAIN BROADLEAF WEEDS

FOR SALE AND USE IN MANITOBA, SASKATCHEWAN, ALBERTA AND PEACE RIVER REGION OF BRITISH COLUMBIA ONLY

GUARANTEE:

Flucarbazone66%
(present as flucarbazone-sodium)

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

STORE IN A COOL, DRY PLACE
Warning, contains the allergen milk.

REGISTRATION NO.: **29558**
PEST CONTROL PRODUCTS ACT

Syngenta Crop Protection Canada, Inc.
140 Research Lane, Research Park,
Guelph, Ontario N1G 4Z3
Telephone: 1-877-964-3682

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote is available. Treat the patient symptomatically.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

When handling (mixing and loading) SIERRA 70 WDG Herbicide, wear long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes.

Read and follow handling precautions and protective clothing recommendations on broadleaf herbicide and surfactant tank-mix partner labels. Follow manufacturer's instructions for cleaning/maintaining PPE (Personal Protective Equipment). If no such instructions for washables, use detergent and hot water. Keep PPE apart from other laundry and wash separately.

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca.

STORAGE

Store in cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, or feed. Store in original container and out of reach of children, preferably in a locked storage area. SIERRA 70 WDG Herbicide is not affected by freezing.

SPILL CLEAN-UP

Follow safety precautions as directed for handling the product. Sweep spilled product with a broom and shovel into tightly closable container. If on a floor or hard surface, wash the surface or floor with detergent and water, then rinse. If on soil, collect surface soil contaminated with the product. If the product is clean, it may be used; otherwise, follow the DISPOSAL instructions.

DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

PRODUCT INFORMATION

SIERRA 70 WDG Herbicide is a selective postemergence herbicide for use in spring wheat (hard red spring, Canada Prairie spring, soft white spring, and extra strong or utility) and durum wheat.

SIERRA 70 WDG Herbicide must be tank mixed with a surfactant listed on this label. For broader spectrum activity, SIERRA 70 WDG Herbicide may be tank mixed with a broadleaf herbicide listed on this label. See section on Tank Mixes for recommended products.

SIERRA 70 WDG Herbicide is absorbed by foliage of wild oat, green foxtail and certain broadleaf weeds. These weeds cease growth soon after application, removing the competitive effects of susceptible weeds. However complete weed control may not be seen for one to two weeks.

SIERRA 70 WDG Herbicide will control wild oat biotypes which have developed resistance to ACCase (Group 1) and triallate (Group 8) herbicides. It will also control green foxtail biotypes resistant to ACCase (Group 1) and dinitroaniline (Group 3) herbicides.

One 567 gram jug contains enough SIERRA 70 WDG Herbicide to treat 13-26 hectares (33-66 acres) depending on the target weeds to be controlled. For weeds controlled and staging of application for each rate refer to the recommended application tables.

567 g Jug Treats the Following:		
Use Rate	Acres	Hectares
21.5 g/ha	66	26
28.5 g/ha	50	20
35.7 g/ha	40	16
43.0 g/ha	33	13

DIRECTIONS FOR USE

Read the entire DIRECTIONS FOR USE before using SIERRA 70 WDG Herbicide.

Ground Application only. DO NOT APPLY BY AIR.

Do not mix, load or clean spray equipment within 10 metres of well-heads or aquatic systems, including marshes, ponds, ditches, streams, lakes, etc.

Buffer Zones:

Overspray or drift to sensitive habitats should be avoided. A buffer zone of 20 m is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelter belts, woodlots, hedgerows, and shrublands. A buffer zone of 35 m is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats including sloughs, coulees, ponds, prairie potholes, lakes, rivers, streams, wetlands, and wildlife habitat at the edge of these bodies of water. Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Consult the label of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Do not apply during periods of dead calm, when winds are gusty or when wind speed is greater than 15 km/hr at 2 m high above ground at the site of application.

Do not apply if it is raining or if rainfall is expected within one (1) hour after application.

Do not graze treated fields or use green crop for food. Wheat grain or straw from treated fields may be fed to livestock.

Do not allow this chemical to drift on to other crops, especially canola, tame oats, or other non target crops.

Observe minimum interval to harvest of 80 days after treatment.

Do not treat wheat underseeded to legumes.

TIMING OF APPLICATION

Do not apply SIERRA 70 WDG Herbicide before crop emergence is complete in durum wheat.

Research has demonstrated that optimum wheat yield is obtained by early removal of target weeds prior to tillering of wheat. Apply SIERRA 70 WDG Herbicide to wheat that has a minimum of one leaf to a maximum of four leaves on the main stem, plus two tillers. Application beyond this stage may result in yield losses due to weed competition.

RECOMMENDED APPLICATIONS

CROP APPLICATION TIMING		
CROP	GROWTH STAGE	REMARKS
Spring Wheat Durum Wheat	1 leaf to 6 total leaves	1 leaf to 4 leaves on main stem, plus 2 tillers

GRASS WEED CONTROL IN SPRING AND DURUM WHEAT			
CROP	WEED	RATE	REMARKS
Spring Wheat	Green foxtail (wild millet)	21.5 g/ha	Green foxtail should be no larger than 4-leaf, 2 tillers.
	Weeds controlled at 21.5 g/ha plus Wild oat Volunteer tame oat	28.5 g/ha	Wild oat should be no larger than 4-leaf, 2 tillers. Use 28.5 g/ha when wild oat infestations are below 100 plants/m ² . Volunteer tame oat should be no larger than 4-leaf, 2 tillers
Durum Wheat	Weeds controlled at 28.5 g/ha plus Wild oat	35.7 g/ha	Wild oat should be no larger than 4-leaf, 2 tillers. Use 35.7 g/ha when wild oat infestations are greater than 100 plants/m ² and plants are actively growing under ideal environmental conditions.
	Weeds controlled at 35.7 g/ha plus Wild oat	43 g/ha	Wild oat should be no larger than 4-leaf, 2 tillers. Use 43 g/ha when wild oat infestations are greater than 100 plants/m ² and when plants are not actively growing due to poor environmental conditions or when tank mixing with a product that contains dicamba [Refer to the TANK MIXES section listed on this label]

BROADLEAF WEED CONTROL IN SPRING AND DURUM WHEAT		
WEED	RATE	REMARKS
Redroot Pigweed (<i>Amaranthus retroflexus</i>)	28.5 g/ha	For control of redroot pigweed, apply SIERRA 70 WDG Herbicide to weeds at the 2 to 6 leaf stage.
Wild Mustard (<i>Brassica kaber</i>)		For control of wild mustard apply SIERRA 70 WDG Herbicide to weeds at the 2 to 6 leaf stage
Stinkweed (<i>Thlaspi arvense</i>)		For control of stinkweed apply SIERRA 70 WDG Herbicide to weeds at the 2 to 9 leaf stage
Volunteer Canola (<i>Brassica napus</i>)		For control of volunteer canola apply SIERRA 70 WDG Herbicide to weeds at the 2 to 6 leaf stage Will not control imidazolinone-tolerant (CLEARFIELD [®]) canola varieties
Green Smartweed (<i>Polygonum scabrum</i> Moench.)		For control of green smartweed apply SIERRA 70 WDG Herbicide to weeds at the 2 to 6 leaf stage
Shepherd's Purse (<i>Capsella bursa-pastoris</i>)		For control of shepherd's purse, apply SIERRA 70 WDG Herbicide to weeds at the 2 to 6 leaf stage.

Wheat exposed to water-logged or saturated soils, or temperature extremes such as heat or freezing weather, or drought, low fertility or plant disease at application time could show unacceptable injury symptoms. Weed control also may be reduced by these same conditions.

TANK MIXES

Use 28.5 g/ha when wild oat populations are below 100 plants/m² and when plants are actively growing.

For broader spectrum control of both annual grasses and broadleaf weeds, SIERRA 70 WDG Herbicide may be mixed with one of the broadleaf herbicides plus a surfactant listed in the following table. With all tank mix partners, read and follow the use directions, rates, precautions, timing, recropping restrictions, grazing interval restrictions and recommendations on the broadleaf herbicide and surfactant labels.

APPROVED TANK MIX PARTNERS IN SPRING WHEAT					
BROADLEAF HERBICIDE TANK MIX PARTNER	BROADLEAF HERBICIDE PRODUCT RATES	SIERRA 70 WDG HERBICIDE RATE			SURFACTANTS (0.25% v/v or 0.25 L/100 L)
		WILD OAT AND GREEN FOXTAIL	WILD OAT ONLY	GREEN FOXTAIL ONLY***	
2,4-D Amine	up to 560 g ae/ha	43 g/ha	28.5 g/ha	21.5 g/ha	Surf 92, Super Spreader, LI 700® Penetrating Surfactant, AGRAL® 90, Ag-Surf
2,4-D Ester	up to 560 g ae/ha	43 g/ha	28.5 g/ha	21.5 g/ha	Surf 92, Super Spreader, LI 700 Penetrating Surfactant, AGRAL 90, Ag-Surf
Ally® + 2,4-D Amine	5 or 7.5 g/ha Ally + up to 560 g ae/ha 2,4-D Amine	*43 g/ha	***28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
Ally + 2,4-D Ester	5 or 7.5 g/ha Ally + up to 560 g ae/ha 2,4-D Ester	*43 g/ha	***28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
Attain® Herbicide Tank Mix	0.6 L/ha Attain A + 1 L/ha Attain B	***43 g/ha	***28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
Buctril® M	1 L/ha	43 g/ha	28.5 g/ha	21.5 g/ha	Surf 92, Super Spreader, LI 700 Penetrating Surfactant, AGRAL 90, Ag-Surf
Curtail® M	1.5 – 2.0 L/ha	***43 g/ha	***28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
DyVel®	1.25 L/ha	43 g/ha	Do Not Use	21.5 g/ha	AGRAL 90, Ag-Surf
*DyVel DS	850 mL/ha	43 g/ha	Do Not Use	21.5 g/ha	AGRAL 90, Ag-Surf
Estaprop® Dichlorprop-D	1.75 L/ha	43 g/ha	28.5 g/ha	21.5 g/ha	Surf 92, Super Spreader, LI 700 Penetrating Surfactant, AGRAL 90, Ag-Surf

APPROVED TANK MIX PARTNERS IN SPRING WHEAT					
BROADLEAF HERBICIDE TANK MIX PARTNER	BROADLEAF HERBICIDE PRODUCT RATES	SIERRA 70 WDG HERBICIDE RATE			SURFACTANTS (0.25% v/v or 0.25 L/100 L)
		WILD OAT AND GREEN FOXTAIL	WILD OAT ONLY	GREEN FOXTAIL ONLY***	
Frontline™ 2,4-D Herbicide Tank-Mix	100 mL/ha Frontline 2,4-D A + 1.0 L/ha Frontline 2,4-D B	43 g/ha	28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
Frontline Herbicide Tank- Mix	100 mL/ha Frontline A + 0.84 L/ha Frontline B	43 g/ha	28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
MCPA Amine	up to 560 g ae/ha	43 g/ha	28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
MCPA Ester	up to 560 g ae/ha	43 g/ha	28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
Pardner®	1 L/ha	43 g/ha	Do Not Use	21.5 g/ha	AGRAL 90, Ag-Surf
Prestige® Herbicide Tank- Mix	0.8 L/ha Prestige A + 2.0 L/ha Prestige B	***43 g/ha	***28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
** Refine Extra® + 2,4-D Amine	20 g/ha Refine Extra + up to 560 g ae/ha 2,4- D Amine	43 g/ha	28.5 g/ha	21.5 g/ha	Surf 92, Super Spreader, LI 700 Penetrating Surfactant, AGRAL 90, Ag-Surf
** Refine Extra + 2,4-D Ester	20 g/ha Refine Extra + up to 560 g ae/ha 2,4- D Ester	43 g/ha	28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
* TARGET® Liquid Systemic Herbicide	1 to 1.5 L/ha	***43 g/ha	Do Not Use	21.5 g/ha	AGRAL 90, Ag-Surf
Spectrum™ Herbicide Tank-Mix	100 mL/ha Spectrum A + 1.5 L/ha Spectrum B	43 g/ha	28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
Thumper® Emulsifiable Selective Weedkiller	1 L/ha	43 g/ha	28.5 g/ha	21.5 g/ha	Surf 92, Super Spreader, LI 700 Penetrating Surfactant, AGRAL 90, Ag-Surf

APPROVED TANK MIX PARTNERS IN DURUM WHEAT					
BROADLEAF HERBICIDE TANK MIX PARTNER	BROADLEAF HERBICIDE PRODUCT RATES	SIERRA 70 WDG HERBICIDE RATE***			SURFACTANTS (0.25% v/v or 0.25 L/100L)
		WILD OAT AND GREEN FOXTAIL	WILD OAT ONLY	GREEN FOXTAIL ONLY	
2,4-D Amine	420 g ae/ha	43 g/ha	28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
2,4-D Ester	420 g ae/ha	43 g/ha	28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
Frontline Herbicide Tank-Mix	100 mL/ha Frontline A + 0.84 L/ha Frontline B	43 g/ha	28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf
Spectrum Herbicide Tank-Mix	100 mL/ha Spectrum A + 1.5 L/ha Spectrum B	43 g/ha	28.5 g/ha	21.5 g/ha	AGRAL 90, Ag-Surf

NOTE:

* Reduction in wild oat control may be observed with this tank mix partner.

** Addition of a second surfactant is not required for SIERRA 70 WDG Herbicide tank mixes with the herbicides Ally, Refine Extra and Unity Herbicide Tank Mix. Use only one of the recommended surfactants from the SIERRA 70 WDG Herbicide label at an application rate of 0.25% v/v (0.25 L per 100 L total spray solution).

*** Apply specified rate in at least 100 L of water per hectare (45 L/acre or 10 gallons/acre).

MIXING INSTRUCTIONS:

Ensure the spray tank is clean. In-line strainers and nozzle screens should be clean and 50-mesh or coarser.

1. Fill the spray tank 1/3 to 1/2 full with clean water and begin agitation or bypass.
2. Add the appropriate SIERRA 70 WDG Herbicide rate directly to the spray tank. Vigorous agitation is required to dissolve the SIERRA 70 WDG Herbicide. Maintain sufficient agitation during both mixing and application.
3. Add the broadleaf weed herbicide.
4. Add the surfactant, then complete filling tank with balance of water needed.

SPRAYING INSTRUCTIONS:

Apply in a spray volume of 50 – 100 L/ha (22.5 – 45 L/acre or 5 – 10 gallons/acre) – unless otherwise specified in tank mix partner section of this label - at 207-345 kPa (30-50 PSI) pressure to ensure proper weed coverage.

Flat fan nozzles of 80° or 110° are recommended for optimum coverage. Do not use floodjet nozzle or control droplet application equipment. Nozzles may be oriented 45° forward to enhance crop penetration and to give better weed coverage.

SPRAYER CLEAN-UP:

1. Drain the tank and thoroughly rinse spray tank, boom and hoses with clean water. Pay particular attention to flushing out any visible deposits.

2. Fill the tank with clean water and 1% v/v (1 L/100L) household ammonia. Flush the hoses, boom and nozzles with the cleaning solution. Circulate for at least 15 minutes. Flush hoses, boom and nozzles once more, then drain the tank.
3. Clean nozzles and screens in a separate container using the ammonia and water.
4. Repeat #2.
5. Rinse tank, boom and hoses with clean water.
 - Do not clean sprayer near desirable vegetation, wells, or other water sources;
 - Dispose of all rinsings in accordance with provincial regulations;
 - Check tank mix partner label for any additional clean-up procedures.

ROTATIONAL CROPS

The following crops may be planted 11 months after an application of SIERRA 70 WDG Herbicide.

Soil Zones and Rotational Crops			
Gray-Wooded	Black	Dark Brown	Brown
Spring wheat Barley Canola Field peas*	Spring wheat Barley Canola Field peas* Field bean Flax Durum wheat	Spring wheat Barley Canola Field peas* Flax Durum wheat	Spring wheat

*Field peas may be grown the year following SIERRA 70 WDG Herbicide application in fields where precipitation has been normal or above normal (10 year average) during the growing season (minimum 100 mm within 60 days of application in year of application), and where organic matter content is above 4%, and soil pH below 7.5.

Or, fields can be summerfallowed.

As SIERRA 70 WDG Herbicide is degraded by soil microbes, environmental conditions that decrease microbial activity must be considered when making rotational cropping decisions. These environmental conditions include prolonged drought and/or cold temperatures within the following cropping season, as well as soils with both low organic matter (OM) (less than 2%) and high pH (greater than 7.5). If these conditions exist, a soil bioassay may be necessary to ensure rotational crop safety.

Do not plant crops other than those listed above in the year following application of SIERRA 70 WDG Herbicide on wheat.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, SIERRA 70 WDG Herbicide is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to SIERRA 70 WDG Herbicide and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

Where possible, rotate the use of SIERRA 70 WDG Herbicide or other Group 2 herbicides with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted.

Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.

Monitor treated weed populations for resistance development.

Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

For further information or to report suspected resistance, contact company representatives at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

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Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3

**In Case of Emergency, Call
1-800-327-8633 (FAST MED)**

Date of MSDS Preparation (Y/M/D): 2011-12-31

Supersedes date (Y/M/D): 2010-12-31

MSDS prepared by:
Department of Regulatory & Biology Assessment
Syngenta Canada Inc.

For further information contact:
1-87-SYNGENTA (1-877-964-3682)

SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: **SIERRA[®] 70 WDG Herbicide** Formulation No.: N/A
Registration Number: 29558 (Pest Control Products Act)
Chemical Class: A Sulfonylurea Herbicide.

Active Ingredient (%): Flucarbazone-sodium (70.0%) CAS No.: 181274-17-9
Chemical Name: 4,5-Dihydro-3-methoxy-4-methyl-5-oxo-N-((2-(trifluoromethoxy)phenyl)sulfonyl)-1H-1,2,4-triazole-1-carboxamidate, sodium salt.

Product Use: A water dispersible granule herbicide for control of wild oats, green foxtail and selected broadleaf weeds in spring wheat and durum wheat. Please refer to product label for further details.

SECTION – 2: COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Flucarbazone-sodium (70.0%)	Not Established	Not Established	Not Established	No	Not Established

† Material listed in Ingredient Disclosure List under Hazardous Products Act.

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

May cause eye irritation.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Tan granules.

Odour: Slight musty odour.

Unusual Fire, Explosion and Reactivity Hazards

This product is a granular solid that can generate dust if not handled with care. Mixtures of dust in air should be avoided.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Potential Health Effects

Relevant routes of exposure: Skin, eyes, mouth, lungs.

SECTION – 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Material Safety Data Sheet with you when calling Syngenta, a poison control center or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [**1-800-327-8633 (1-800-FASTMED)**], for further information.

EYE CONTACT: Flush eyes with clean water, holding eyelids apart for a minimum of 15 - 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta, a poison control center or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

SKIN CONTACT: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with plenty of water for 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

INHALATION: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

INGESTION: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control center. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

NOTES TO PHYSICIAN:

There is no specific antidote. Treat symptomatically.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED:

Asthma or other respiratory conditions may be aggravated by chemical irritants.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: Not applicable.

Upper and lower flammable (explosive) limits in air: Not applicable.

Auto-ignition temperature: Not applicable.

Flammability: Not flammable.

Hazardous combustion products: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Conditions under which flammability could occur: Keep fire exposed containers cool by spraying with water.

Extinguishing media: Use water fog or mist, (avoid use of water jet), foam, carbon dioxide, dry powder or halon extinguishant. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

Sensitivity to explosion by mechanical impact: None known

Sensitivity to explosion by static discharge: Possible dust explosion hazard.

SECTION – 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices. A small spill can be handled routinely. See Section 8 for personal protective equipment and clothing.

Procedures for dealing with release or spill: Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing

precautions outlined in Sections 7 and 8. Scoop or sweep up material and place into a disposable container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory authority.

SECTION – 7: HANDLING AND STORAGE

Handling practices: KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Appropriate storage practices/requirements: Store in original container only in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Storage temperature minimum is 0°C and not to exceed a maximum of 38°C. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

National Fire Code classification: Not applicable.

SECTION – 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Applicable control measures, including engineering controls: This product is intended for use outdoors where engineering controls are not necessary. If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV. Warehouses, production area, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS.

Personal protective equipment for each exposure route:

General: Avoid breathing dust, vapour or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

INGESTION: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

EYES: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

SKIN: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

INHALATION: A respirator is not normally required when handling this substance. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P or R 95 or HE class filter and an organic vapour cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmosphere-supplying respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Tan granules.

Formulation Type: Water dispersible granule.

Odour: Slight musty odour.

pH: 7 - 8 @ 25C (5% aqueous suspension)

Vapour pressure and reference temperature: Not Volatile.

Vapour density: Not applicable.

Boiling point: Not applicable.

Melting point: 200 °C (Flucarbazone Technical; decomposition)

Freezing point: Not applicable.

Specific gravity or density: 0.55 g/cm³ @ 20 °C.

Evaporation Rate: Not available.

Water/oil partition coefficient: log Kow = -0.89, -1.84 and -1.88 @ pH 4, 7 and 9, respectively (Flucarbazone Technical).

Odour threshold: Not available.

Viscosity: Not applicable.

Solubility in Water: 3.1% (w/w) @ 20 °C (Flucarbazone Technical).

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable under normal use and storage conditions.

Conditions to avoid: None known.

Incompatibility with other materials: None known.

Hazardous decomposition products: Can decompose at high temperatures forming toxic gases.

Hazardous polymerization: Will not occur.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Low Acute Toxicity</u> Oral (LD50 Rat):	> 5,000 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u> Dermal (LD50 Rabbit):	> 5,000 mg/kg body weight
Inhalation:	<u>Low Acute Toxicity</u> Inhalation (LC50 Rat):	> 5.13 mg/L air - 4 hours
Eye Contact:	<u>Minimally Irritating (Rabbit)</u>	
Skin Contact:	<u>Non-Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

Reproductive/Developmental Effects

Flucarbazone Technical:

No teratogenic potential or effects on reproductive performance were detected.

Chronic/Subchronic Toxicity Studies

Flucarbazone Technical:

Toxicity following repeated dosing at very high doses included stomach and liver effects, decreased body weight and increased or decreased food consumption.

Carcinogenicity

Flucarbazone Technical:

Not carcinogenic in studies with rats and mice. The US EPA classified flucarbazone-sodium as "not likely to be carcinogenic to humans" by all routes of exposure based upon lack of evidence of carcinogenicity in rats and mice.

Other Toxicity Information:

None.

Toxicity of Other Components

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

Other materials that show synergistic toxic effects together with the product: None known.

Target Organs

Active Ingredient

Flucarbazone Technical: Liver, stomach.

Inert Ingredients

Not Applicable.

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects

Sierra is an herbicide to be mixed with water and used for control wild oats, green foxtail and selected broadleaf weeds in spring wheat and durum wheat. The active ingredient, flucarbazone, is practically non-toxic to honey bees, aquatic invertebrates, fish, birds and mammals, but is phytotoxic to non-target terrestrial and aquatic plants. Based upon these findings, the use of Sierra on wheat does not present a significant environmental hazard. However, due to this active's very high mobility in all soil types, care should be taken to protect nearby non-target terrestrial plants from excessive exposure due to runoff.

Eco-Acute Toxicity

Flucarbazone Technical:

Algae (Green) 96-hour IC ₅₀	6.4 mg/L
Bees (Contact) LC ₅₀ /EC ₅₀	> 200 µg/bee
Invertebrates (<i>Daphnia magna</i>) 48-hour LC ₅₀ /EC ₅₀	38.8 mg/L
Fish (Trout) 96-hour LC ₅₀ /EC ₅₀	> 96.7 mg/L
Fish (Bluegill) 96-hour LC ₅₀ /EC ₅₀	> 99.3 mg/L
Bobwhite Quail Oral LD ₅₀	> 2,000 mg/kg bw
Birds (Sub-chronic Oral - Bobwhite Quail) LC ₅₀ /EC ₅₀	> 4646 mg/kg
Birds (Sub-chronic Oral - Mallard Duck) LC ₅₀ /EC ₅₀	> 4969 mg/kg

Eco-Chronic Toxicity

Flucarbazone Technical:

Bobwhite Quail Reproduction NOEC	1311 mg/kg
Mallard Duck Reproduction NOEC	223 mg/kg

Environmental Fate

Flucarbazone-sodium is slightly persistent in soils under field conditions. The parent compound and transformation products have a low potential to leach and contaminate groundwater under field conditions.

For Sierra, the bulk material sinks in water (after 24 h) and gradually disperse in water to form an suspension.

SECTION – 13: DISPOSAL CONSIDERATIONS

Waste disposal information: Do not reuse empty containers unless they are specifically designed to be refillable. Empty container retains product residue. Triple rinse, empty container, return rinse water to dilution mixture, and dispose of dilution mixture as a hazardous waste if it cannot be disposed of by use according to label instructions. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents must accompany the shipment.

SECTION – 14 : TRANSPORT INFORMATION

Shipping information such as shipping classification:

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION - ROAD/RAIL
Not Regulated.

SECTION – 15: REGULATORY INFORMATION

WHMIS classification for product: Exempt

A statement that the MSDS has been prepared to meet WHMIS requirements, except for use of the 16 headings.

This MSDS has been prepared in accordance with WHMIS requirements, but the data are presented under 16 headings.

Other regulations; restrictions and prohibitions

Pest Control Products (PCP) Act Registration No.: 29558

SECTION – 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant MSDS. Hazardous properties of all ingredients have been considered in the preparation of this MSDS. Read the entire MSDS for the complete hazard evaluation of this product.

Prepared by: Syngenta Canada Inc.
1-87-SYNGENTA (1-877-964-3682)

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Specimen Label

IMPORTANT NOTICE

U.S. LABEL - It is a violation of United States law to use this product in the United States in a manner inconsistent with its United States labeling.



Dow AgroSciences



HERBICIDE

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GROUP	2	HERBICIDE
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ACTIVE INGREDIENTS/GUARANTEED:

PYROXSULAM:	2.87%
Other Ingredients	97.13%
Total	100.00%

Warning, contains the allergen soy.

Contains petroleum distillates.

Equivalent to 0.25 lb per gallon or 30 g per liter of pyroxsulam.

FIRST AID

When seeking medical attention, take the container label if at all possible. If not, take information which identifies the product, that is, the product name and registration numbers.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

In the U.S. - In case of emergency endangering health or the environment involving this product call 1-800-992-5994.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia.

Precautionary Statements

Hazards to Humans and Domestic Animals

EPA Reg. No. 62719-568

WARNING/AVISO  **POISON**

POTENTIAL DERMAL SENSITIZER EYE AND SKIN IRRITANT

Harmful if inhaled • Harmful if Swallowed • Causes eye and skin irritation • Do not get in eyes or on skin • Prolonged or Frequently Repeated Skin Contact May Cause Allergic Reactions in Some Individuals

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical resistance category selections chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves
- Shoes plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Environmental Hazards

TOXIC to aquatic organisms and non-target terrestrial plants. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or disposing of wastes. Overspray or drift to sensitive habitats should be avoided. Do not apply during periods of dead calm or when winds are gusty. This product contains petroleum distillate.

This product may contaminate surface water due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow ground water.

This product is classified as having high potential for runoff for several days after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential for contamination of water from runoff of rainwater. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on the label about personal protective equipment, restricted-entry interval, and notification to workers (as applicable). The requirements in this box apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

For early entry into treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, wear:

- Coveralls
- Chemical-resistant gloves (made of any waterproof material)
- Shoes plus socks
- Protective eyewear

Storage and Disposal

Store in original container in a secure, dry, heated storage. This product will freeze at 14°F/-10°C. Do not store below 16°F/-9°C. Allow product to warm above 45°F/7°C before using and thoroughly mix the product prior to use. Do not contaminate food, feedstuffs or domestic water supplies.

Pesticide Storage: Store in original container only. Do not store below 16°F. Allow product to warm above 45°F before using and thoroughly mix the product prior to use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Nonrefillable containers 5 gallons or less:

Container Handling: Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Refillable containers 5 gallons or larger:

Container Handling: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

Nonrefillable containers 5 gallons or larger:

Container Handling: Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Product Information

Use Simplicity™ CA herbicide as a postemergence herbicide for the control of annual grass and broadleaf weeds in wheat (including durum) and triticale.

Simplicity CA rapidly stops growth of susceptible weeds. However, typical symptoms (discoloration) of controlled or suppressed weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent upon weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

Product Precautions

When applying this product in tank mix combination, follow all applicable use directions, precautions, and limitations on each manufacturer's label.

Product Restrictions

Chemigation: Do not apply this product through any type of irrigation system.

Do not apply Simplicity CA directly to, or otherwise permit it to come into direct contact with, susceptible crops or desirable plants including alfalfa, barley, canola, beans, cotton, flowers, grapes, lettuce, lentils, mustard, oats, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tobacco, tomatoes, vegetables, or other desirable broadleaf crops or ornamental plants. Do not permit spray mists containing Simplicity CA to drift onto such plants

Do not apply to crops underseeded with legumes.

Crop Rotation Intervals

The following rotational crops may be planted at the indicated interval following application of Simplicity CA.

Crop Rotation Intervals for Arizona and California

Superscripted numbers refer to Crop Specific Rotation Information.

Crop	Rotation Interval (Months) ¹
triticale, wheat	1
corn (field, silage), cotton, dry beans, melons, sorghum (grain, silage), sudangrass	3
alfalfa, broccoli, cabbage, cauliflower, lettuce, onion	5
barley, grasses, millet, oats, popcorn, seed corn, sweet corn, camelina, canola, chickpea, flax, lentil, mustard, pea (dry and succulent), potato, safflower, soybean, sugar beet, sunflower, tomato	9
other crops not listed	12

¹ Minimum number of months that must elapse before planting other crops after application of Simplicity CA.

Note: Simplicity CA is degraded primarily by microbial activity and breaks down more rapidly under favorable soil moisture and temperature conditions. Correspondingly, the rate of degradation may be slower under extreme conditions of drought or cold temperatures. When soil moisture conditions are abnormally dry during the interval between an application of Simplicity CA and planting the next crop, conduct a field bio-assay by planting test strips of the desired rotational crop. Monitor the test strips during germination and emergence for any abnormal growth to determine if the rotational crop can be grown successfully.

Avoiding Injurious Spray Drift

This product can affect broadleaf plants directly through foliage and indirectly by root uptake from treated soil. Do not apply Simplicity CA directly to, or allow spray drift to come into contact with, broadleaf crops including alfalfa, barley, canola, beans, cotton, flowers, grapes, lettuce, lentils, mustard, oats, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tobacco, tomatoes, vegetables, or other desirable broadleaf crops or ornamental plants or soil where sensitive crops will be planted the same season. (See Crop Rotation Intervals section.)

Make applications only when there is little or no hazard from spray drift. Very small quantities of spray, which may not be visible, may seriously injure crops, whether dormant or actively growing. When applying Simplicity CA, use low pressure equipment capable of producing sprays of uniform droplet size with a minimum of fine spray droplets. Under adverse weather conditions, fine spray droplets that do not settle rapidly onto target vegetation may be carried a considerable distance from the treatment area. A drift control or spray thickening agent may be used with this product to improve spray deposition and minimize the potential for spray drift. If used, follow all use directions and precautions on the product label.

Ground Applications: To minimize spray drift, apply Simplicity CA in a total spray volume of 10 gallons or more per acre using spray equipment designed to produce large droplet, low pressure sprays. Refer to the spray equipment manufacturer's directions for detailed information on nozzle types, arrangement, spacing and operating height and pressure. Apply spot treatments only with a calibrated boom to prevent over application. Operate equipment at spray pressures no greater than is necessary to produce a uniform spray pattern. Operate the spray boom no higher than is necessary to produce a uniformly overlapping pattern between spray nozzles. Do not apply with hollow cone-type nozzles or other nozzles that produce a fine-droplet spray.

Aerial Application: To minimize spray drift, apply Simplicity CA in a total spray volume of 5 gallons or more per acre. Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Avoid applications below 2 mph due to variable wind direction and high potential for temperature inversion. Spray drift from aerial application can be minimized by applying a coarse spray at spray boom pressure no greater than 30 psi; by using straight-stream nozzles directed straight back; and by using a spray boom no longer than 3/4 the rotor or wing span of the aircraft. Spray pattern and droplet size distribution can be evaluated by applying sprays containing a water-soluble dye marker or appropriate drift control agents over a paper tape (adding machine tape). Mechanical flagging devices may also be used.

Do not apply under conditions of a low level air temperature inversion. A temperature inversion is characterized by little or no wind and lower air temperature near the ground than at higher levels. The behavior of smoke generated by an aircraft-mounted device or continuous smoke column released at or near site of application will indicate the direction and velocity of air movement. A temperature inversion is indicated by layering of smoke at some level above the ground and little or no lateral movement.

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

- The distance of the outer most operating nozzles on the boom must not exceed 75% of wingspan or 90% of rotor diameter.
- Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed.

The applicator must be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory. This information is advisory in nature and does not supersede mandatory label requirements.

Aerial Drift Reduction Advisory

Information on Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's specified pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the air stream produces larger droplets than other orientations. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length: For some use patterns, reducing the effective boom length to less than 75% of the wingspan or 90% of rotor length may further reduce drift without reducing swath width.

Application Height: Do not make applications at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment: When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind: Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Avoid making applications below 2 mph due to variable wind direction and high inversion potential.

Note: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Do not apply during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas: Apply the pesticide only when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

California Application Requirements for Protection of Sensitive Crops

In addition to precautions in the **Aerial Drift Reduction Advisory** section, the following drift management requirements must be followed to minimize the potential for exposure of sensitive crops in California.

Determine the prevailing wind speed and direction before application. Choose nozzles that will give a coarse droplet size spectrum (volume median diameter (VMD) of 350-400 microns) and minimize droplets that are less than 200 microns.

Ground Application

Avoid spraying if sustained wind speeds exceed 10 mph. Avoid applying in gusty wind conditions. Setting the boom at the lowest height which provides uniform coverage reduces the exposure of droplets to evaporation and wind. Application more than 2 feet above the crop canopy increases the potential for spray drift. Medium to coarse droplet size reduces off-target drift. See table below for buffer zones to sensitive crops.

Aerial Application

Solid stream nozzles oriented straight back produce the largest droplet size spectrum and the lowest drift. Boom length should be 75% or less of wing span. For helicopters, use a boom length or position that prevents droplets from entering the rotor vortices. Apply using a spray volume of 5 GPA or greater. Avoid spraying if sustained wind speeds exceed 10 mph. Avoid applying in gusty wind conditions. Application more than 10 feet above the canopy increases the potential for spray drift. Applications must be made at the lowest application height that provides uniform coverage and should be consistent with the safe operation of the aircraft. Coarse droplet size reduces off-target drift. See table below for buffer zones to sensitive crops.

Buffer Zones

The following buffer zones between the treated area and sensitive crops are required when these sensitive crops are downwind of the application site.

Sensitive Crop	Downwind buffer zone, feet	
	Ground	Air
carrot	120	500
onions	10	100
oat and ryegrass	50	250
All other broadleaf annual crops	20	160
tree and vine crops	20	160
dormant tree and vine crops	No buffer zone is required	

Mixing Directions

Simplicity CA - Alone

1. Fill the tank with 1/2 of the total amount of water.
2. Start agitation.
3. Add the required amount of Simplicity CA.
4. Add the required amount of adjuvant (refer to Adjuvants section).
5. Continue agitation while filling the spray tank to the required volume.
6. To ensure a uniform spray mixture, continuous agitation is required during application. If product is allowed to settle, thoroughly agitate to resuspend the mixture before spraying. Apply mixture immediately after it is prepared.

Simplicity CA - Tank Mix

If a broader spectrum of weed control is needed, Simplicity CA may be tank mixed with labeled rates of other herbicides provided (1) the tank mix product is labeled for the timing and method of application for the use site to be treated; and (2) tank mixing is not prohibited by the label of the tank mix product.

Tank Mixing Precautions:

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not mix with products containing dicamba or amine formulations of 2,4-D or MCPA as these products may reduce grass control provided by Simplicity CA.
- Do not tank mix with organophosphate insecticides as these mixtures may result in unacceptable crop injury.
- Do not exceed specified application rates for respective products or maximum allowable application rates for any active ingredient in the tank mix.
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.
- Incompatible mixtures may lead to difficult to clean herbicide residues in the spray tank which if not properly cleaned could cause damage to sensitive crops.

Tank Mix Compatibility Testing: Perform a jar test prior to tank mixing to ensure compatibility of Simplicity CA and other pesticides. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. If the mixture balls-up, forms flakes, sludges, jels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

Vigorous, continuous agitation during mixing, filling and throughout application is required for all tank mixes. Sparger pipe agitators generally provide the most effective agitation in spray tanks. To prevent foaming in the spray tank, avoid stirring or splashing air into the spray mixture.

Mixing Order for Tank Mixes:

1. Fill the spray tank to 3/4 of the total spray volume required with water.
2. Start agitation.
3. Add Simplicity CA and agitate for 2 to 3 minutes
4. After adding Simplicity CA, add different formulation types in the following order: (1) dry flowables; (2) wettable powders; (3) aqueous suspensions, flowables and liquids. Maintain agitation and add: (4) emulsifiable concentrates; (5) solutions; and (6) adjuvants. Allow time for complete mixing and dispersion after each addition.
5. Finish filling the spray tank. Maintain continuous agitation during mixing and throughout application. If product is allowed to settle, thoroughly agitate to resuspend the mixture before spraying. Apply mixture immediately after it is prepared.

If application or agitation must be stopped before the spray tank is empty, the materials may settle to the bottom. Settled materials must be resuspended before spraying is resumed. A sparger agitator is particularly useful for this purpose. Settled material may be more difficult to resuspend than when originally mixed.

Clean-Out Procedures for Spray Equipment

1. Drain any remaining spray mixture from the application equipment, then wash out tank, boom, and hoses with clean water. Drain again.
2. Hose down the interior surfaces of the tank while filling the tank 1/2 full of water.
3. Add commercial tank cleaner, such as household ammonia, at a rate of 1 gallon per 100 gallons of water. Recirculate for 10 – 20 minutes and spray out the mixture through the boom.
4. Remove all spray nozzles and screens and clean separately.
5. If spray equipment will be used for pesticide application to crops sensitive to Simplicity CA, repeat steps 1 through 3. Additional steps may be required to remove all traces of Simplicity CA including replacing hoses or other fittings that may contain adsorbed actives.
6. Thoroughly clean exterior surfaces of spray equipment.

Note: Rinsate may be disposed of on site according to label use directions or at an approved waste disposal facility. Reduced results may occur if water containing soil is used, such as visibly muddy water or water from ponds and ditches that is not clear.

Weeds Controlled (C) or Suppressed (S)

Best results are obtained when grass weeds are treated at the 2-leaf to 2-tiller stage of growth and before broadleaf weeds are larger than 2 inches tall or 2 inches in diameter. Best control is achieved when applications are made to actively growing weeds. Control may be reduced when weeds are exposed to drought or extreme temperatures. Simplicity CA will not control known ALS (Group 2) resistant biotypes of labeled weeds.

Common name	Scientific Name	Control/Suppression
Grass Weeds		
barley, foxtail	<i>Hordeum jubatum</i>	S
blackgrass	<i>Alopecurus myosuroides</i>	C
brome, downy	<i>Bromus tectorum</i>	S
brome, Japanese	<i>Bromus japonicus</i>	C
brome, riggut	<i>Bromus diandrus</i>	C
canarygrass, hood	<i>Phalaris paradoxa</i>	S
canarygrass, littleseed	<i>Phalaris minor</i>	S
cheat	<i>Bromus secalinus</i>	C
chess, hairy	<i>Bromus commutatus</i>	C
fescue, rattail	<i>Vulpia myuros</i>	S
foxtail, green	<i>Setaria viridis</i>	S
foxtail, yellow	<i>Setaria pumila</i>	C ⁴
oat, wild	<i>Avena fatua</i>	C
quackgrass	<i>Elymus repens</i>	S
rescuegrass	<i>Bromus catharticus</i>	S
ryegrass, Italian	<i>Lolium perenne</i>	C
windgrass	<i>Apera spica-venti</i>	C
Broadleaf Weeds		
bedstraw, catchweed (cleavers)	<i>Galium aparine</i>	C
buckwheat, wild	<i>Polygonum convolvulus</i>	S
canola, volunteer (wild turnip) ²	<i>Brassica rapa</i>	C
chickweed, common	<i>Stellaria media</i>	C
chickweed, mouseear	<i>Cerastium fontanum</i>	C
dogfennel	<i>Eupatorium capillifolium</i>	C
falseflax, smallseed ¹	<i>Camelina microcarpa</i>	C
fiddleneck, coast	<i>Amsinckia menziesii</i> var. <i>intermedia</i>	C
flixweed ²	<i>Descurainia sophia</i>	C
goosefoot, nettleleaf	<i>Chenopodium murale</i>	C
gromwell, corn	<i>Buglossoides arvensis</i>	C
hempnettle, common	<i>Galeopsis tetrahit</i>	C
henbit	<i>Lamium amplexicaule</i>	S
ladysthumb	<i>Polygonum persicaria</i>	C
lambsquarters, common	<i>Chenopodium album</i>	C ³
mustard, black	<i>Brassica nigra</i>	C
mustard, blue ¹	<i>Chorispora tenella</i>	C
mustard, tumble ¹	<i>Sisymbrium altissimum</i>	C
mustard, wild	<i>Sinapis arvensis</i>	C
mustard, wormseed ¹	<i>Erysimum cheiranthoides</i>	C
nettle, burning	<i>Urtica urens</i>	C
radish, wild	<i>Raphanus raphanistrum</i>	C
pennycress, field ¹	<i>Thlaspi arvense</i>	C
pigweed, redroot	<i>Amaranthus retroflexus</i>	C
shepherd's-purse ¹	<i>Capsella bursa-pastoris</i>	C
tansymustard, pinnate ¹	<i>Descurainia pinnata</i>	C
thistle, Russian	<i>Salsola tragus</i>	C ³
wallflower, bushy ¹	<i>Erysimum repandum</i>	C

¹Control may be reduced when application is made after bolting

²Including herbicide-tolerant canola varieties except Clearfield (imidazolinone-tolerant) canola.

³Less than 2 inches tall. For control of lambsquarters over 2 inches tall, tank mix with 0.25 lb ae MCPA or 2,4-D. For control of Russian thistle over 2 inches tall, tank mix with 0.25 lb ae 2,4-D.

⁴One to four-leaf stage of growth

Resistance Management

Simplicity CA is an ALS mode of action (Group 2) herbicide. Any weed population may contain or develop plants naturally resistant to this product and other ALS herbicides. Simplicity CA will not control known ALS (Group 2) resistant biotypes of labeled weeds. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Simplicity CA or other ALS herbicides with different herbicide groups that control the same weeds in a field.
- For best resistance management stewardship, do not use more than once per season.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based upon an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.

- Contact your local extension specialist or certified crop advisers for any additional pesticide resistance management and/or integrated weed management requirements for specific crops and weed biotypes.

Application Directions

Application Timing

Apply Simplicity CA postemergence to the main flush of actively growing weeds according to the target weed stage shown in the above table. Extreme growing conditions such as drought, temperatures near or below freezing prior to, at, or following time of application may reduce weed control and increase the risk of crop injury at all stages of growth.

Warm, moist growing conditions promote active weed growth and enhance the activity of Simplicity CA by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds.

If foliage is wet at the time of application, control may be decreased. Applications of Simplicity CA are rainfast within 4 hours after application.

Spray Coverage

Use sufficient spray volume to provide thorough coverage and a uniform spray pattern. Do not broadcast apply in less than 5 gallons of total spray volume per acre. For best results and to minimize spray drift, apply in a spray volume of 10 gallons or more per acre. As vegetative canopy and weed density, increase spray volume to obtain equivalent weed control. Use only nozzle types and spray equipment designed for herbicide application. To reduce spray drift, follow precautions under Avoiding Injurious Spray Drift.

Adjuvants

When Simplicity CA is applied alone, use one of the following surfactants or adjuvants:

- Non-ionic surfactant with at least 80% active ingredient at 0.25% to 0.50% v/v (1 to 2 quarts per 100 gallons spray solution). In conditions of moisture stress or low relative humidity, add spray grade ammonium sulfate at 1.5 lb per acre.

When Simplicity CA is applied in combination with emulsifiable concentrate (EC) formulations, such as 2,4-D ester, MCPA ester, Starane or bromoxynil+MCPA products, do not use an adjuvant.

Do not use additives that lower the spray solution below a pH of 6.0.

When an adjuvant is to be used with this product, Dow AgroSciences recommends the use of a Chemical Producers and Distributors Association certified adjuvant.

Application in Fluid Fertilizer

Simplicity CA may be applied in spray solutions containing liquid nitrogen. The spray solution should not be composed of more than 50% liquid nitrogen and should not exceed 30 lb of actual nitrogen per acre. When Simplicity CA is applied in spray solutions containing liquid nitrogen, use a non-ionic surfactant at a maximum of 0.25% v/v. Temporary crop injury may result when liquid nitrogen is used as the spray carrier. Foliar applied liquid nitrogen may cause foliar leaf burn, yellowing or reduced growth due to the activity of the liquid fertilizer on the crop.

Wheat (Including Durum) and Triticale

Apply 6.75 fl oz of Simplicity CA per acre in either fall or spring to actively growing wheat (including spring, winter and durum) and triticale from the 3-leaf to jointing stage (Zadoks scale 31) for control or suppression of target weeds (refer to section above entitled Weeds Controlled (C) or Suppressed (S)). Treat after the majority of weeds have emerged. Best results are obtained when application is made to weeds that are actively growing.

Occasionally, slight yellowing or height reduction may be observed in the treated crop. These transient symptoms disappear within 14 days with no reduction to yield. Do not apply to crops suffering from drought, water-logged soils, nutrient deficiency or exposed to frost or other agronomic factors affecting plant growth. Do not use on wheat or triticale varieties that are sensitive to ALS herbicides.

Tank Mixtures: Simplicity CA may be applied in tank mix combination with labeled rates of other products registered for postemergence application in wheat or triticale. See Tank Mixing Precautions under Mixing Directions. When tank mixing, do not exceed specified application rates and use only in accordance with the most restrictive precautions and limitations on the respective product labels.

Crop Specific Use Restrictions:

- **Preharvest Interval:** Do not apply within 60 days of harvest.
- Do not apply more than a total of 6.75 fl oz of Simplicity CA per acre per growing season.
- Do not graze the treated crop within 7 days following application.
- Do not cut the treated crop for hay within 28 days following application.
- Do not apply a product containing organophosphates for five days before or five days after an application of Simplicity CA.

Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent permitted by law, otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies.

Warranty Disclaimer

Dow AgroSciences warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. To the extent permitted by law, Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. To the extent permitted by law, all such risks shall be assumed by buyer.

Limitation of Remedies

To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.

To the extent permitted by law, Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

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Dow AgroSciences LLC
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Indianapolis, IN 46268 U.S.A.

Label Code: D02-913-002
 Replaces Label: D02-913-001
 LOES Number: 010-02293

EPA accepted 02/05/15

Revisions:

1. Delete regional restrictions from the base label in Canada
2. Update Global branding

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: SIMPLICITY™ Herbicide

Issue Date: 03/08/2016

Print Date: 03/08/2016

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: SIMPLICITY™ Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.
2100 450 1ST STREET SW
CALGARY AB T2P 5H1
CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 03/08/2016

Print Date: 03/08/2016

Customer Information Number:

800-667-3852
solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid.

Color Brown

Odor pungent

Hazard Summary**WARNING!!**

May cause allergic skin reaction.
May cause eye irritation.
May cause central nervous system effects.
May cause anesthetic effects.
May cause respiratory tract irritation.
Aspiration hazard. Can enter lungs and cause damage.
Isolate area.
Keep upwind of spill.
Toxic fumes may be released in fire situations.
Suspect cancer hazard. May cause cancer.

Potential Health Effects

Eyes: May cause severe eye irritation.

May cause corneal injury.

May cause permanent impairment of vision.

Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin: Brief contact may cause slight skin irritation with local redness.

May cause drying and flaking of the skin.

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

For the active ingredient(s):

Has caused allergic skin reactions when tested in guinea pigs.

Inhalation: Prolonged excessive exposure to mist may cause adverse effects.

Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.

May cause central nervous system effects.

Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Signs and symptoms of excessive exposure may include:

Nausea and/or vomiting.

Ingestion: Very low toxicity if swallowed.

Harmful effects not anticipated from swallowing small amounts.

May be fatal if swallowed and enters airways.

Chronic Exposure: For the active ingredient(s):

In animals, effects have been reported on the following organs:

Bone marrow.

Kidney.

Liver.

Thymus.

Thyroid.

Bladder.

Contains naphthalene which has caused cancer in some laboratory animals.

In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Weight percent
Pyroxsulam	422556-08-9	2.88%
Cloquintocet-mexyl	99607-70-2	8.64%
Naphthalene	91-20-3	>= 0.1 - <= 0.7 %
Balance	Not available	>= 87.76 - <= 88.36 %

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be available in work area.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be immediately available.

Ingestion: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label

with you when calling a poison control center or doctor, or going for treatment. Repeated excessive exposure may aggravate preexisting lung disease. Skin contact may aggravate preexisting dermatitis.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Sulfur oxides. Nitrogen oxides. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Keep upwind of spill. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling. Keep container closed.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Pyroxsulam	Dow IHG	TWA	5 mg/m3
	Dow IHG	TWA	Skin Sensitizer
Naphthalene	ACGIH	TWA	10 ppm
	CA AB OEL	TWA	52 mg/m3 10 ppm
	CA AB OEL	STEL	79 mg/m3 15 ppm
	CA BC OEL	TWA	10 ppm
	CA BC OEL	STEL	15 ppm
	CA QC OEL	TWAEV	52 mg/m3 10 ppm
	CA QC OEL	STEV	79 mg/m3 15 ppm

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements

(cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material.

Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid.
Color	Brown
Odor	pungent
Odor Threshold	No test data available
pH	5.18 <i>pH Electrode</i>
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	closed cup > 100 °C <i>Closed Cup</i>
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	No data available
Water solubility	No test data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Liquid Density	1.04 g/cm ³ at 20 °C <i>Digital density meter</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with oxidizing materials.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrocarbons. Hydrogen chloride. Hydrogen fluoride. Nitrogen oxides. Sulfur oxides. Toxic gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, Rat, > 5,000 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, Rat, > 5,000 mg/kg

Acute inhalation toxicity

Prolonged excessive exposure to mist may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Signs and symptoms of excessive exposure may include: Nausea and/or vomiting.

As product: The LC50 has not been determined.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation

May cause severe eye irritation.
May cause corneal injury.
May cause permanent impairment of vision.
Vapor may cause eye irritation experienced as mild discomfort and redness.

Sensitization

For the active ingredient(s):
Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant information found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):
In animals, effects have been reported on the following organs:
Bone marrow.
Kidney.
Liver.
Thymus.
Thyroid.
Bladder.

For the solvent(s):
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity

For the active ingredient(s): Did not cause cancer in laboratory animals.

Contains naphthalene which has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

Teratogenicity

For the active ingredient(s): For the solvent(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity

In animal studies, active ingredient did not interfere with reproduction.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

May be fatal if swallowed and enters airways.

COMPONENTS INFLUENCING TOXICOLOGY:**Pyroxsulam****Acute inhalation toxicity**

LC50, Rat, 4 Hour, Aerosol, > 5.12 mg/l No deaths occurred at this concentration.

Cloquintocet-mexyl**Acute inhalation toxicity**

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.42 mg/l

Balance**Acute inhalation toxicity**

The LC50 has not been determined.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity**Pyroxsulam****Acute toxicity to fish**

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50, *Oncorhynchus mykiss* (rainbow trout), static test, 96 Hour, > 87.0 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EC50, *Lemna minor* (duckweed), 7 d, Biomass, 0.00257 mg/l, OECD 221.

Toxicity to bacteria

EC50, activated sludge, 3 Hour, > 1,000 mg/l

Chronic toxicity to fish

NOEC, *Pimephales promelas* (fathead minnow), flow-through test, 40 d, survival, 3.2 - 10.1 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (Water flea), static test, 21 d, survival, 10.4 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

LC50, *Colinus virginianus* (Bobwhite quail), 8 d, > 5000mg/kg diet.

LD50, *Colinus virginianus* (Bobwhite quail), > 2000mg/kg bodyweight.

oral LD50, *Apis mellifera* (bees), 48 Hour, > 107.4micrograms/bee

contact LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, > 10,000 mg/kg

Cloquintocet-mexyl

Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

As the ester active substance.

LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, > 0.97 mg/l, Method Not Specified.

Acute toxicity to aquatic invertebrates

As the ester active substance.

EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 0.82 mg/l, Method Not Specified.

Acute toxicity to algae/aquatic plants

As the ester active substance.

EbC50, alga Scenedesmus sp., 96 Hour, Biomass, 0.63 mg/l, Method Not Specified.

As the ester active substance.

EbC50, Lemna minor (duckweed), 14 d, Biomass, > 0.42 mg/l, Method Not Specified.

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50, Anas platyrhynchos (Mallard duck), > 2000mg/kg bodyweight.

dietary LC50, Anas platyrhynchos (Mallard duck), 8 d, > 5200mg/kg diet.

oral LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee

contact LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), > 1,000 mg/kg

Balance

Acute toxicity to fish

No relevant data found.

Persistence and degradability

Pyroxsulam

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

Biodegradation: 20 - 30 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Cloquintocet-mexyl

Biodegradability: No relevant data found.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Pyroxsulam

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -1.01 Measured

Cloquintocet-mexyl

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 5.3 Estimated.

Bioconcentration factor (BCF): 122 - 621 Fish

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

Pyroxsulam

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): <= 42 Estimated.

Cloquintocet-mexyl

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient(Koc): 38070 Estimated.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(PYROXSULAM, Naphthalene)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	PYROXSULAM, Naphthalene

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(PYROXSULAM, Naphthalene)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	PYROXSULAM, Naphthalene
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(PYROXSULAM, Naphthalene)
UN number	UN 3082
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act Registration Number: 28887

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
2	1	1

Revision

Identification Number: 101216332 / A215 / Issue Date: 03/08/2016 / Version: 2.1

DAS Code: GF-2541

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	Canada. British Columbia OEL
CA QC OEL	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Dow IHG	Dow Industrial Hygiene Guideline
STEL	short-term exposure limit
STEV	Short-term exposure value
TWA	8-hour time weighted average
TWAEV	Time-weighted average exposure value

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

GROUP

9

HERBICIDE

SMOKE 41% GLYPHOSATE®

**HERBICIDE
AGRICULTURAL AND INDUSTRIAL
Solution**



CAUTION IRRITANT

NET CONTENTS: 120L 500L 1,000 L

ACTIVE INGREDIENT: Glyphosate, 360 grams acid equivalent per litre present as the isopropylamine salt

Farmers Business Network Canada, Inc
Box 5607 High River, Alberta
Canada T1V1M4

1(844)200-FARM

Distributed by:
Great Northern Growers Inc.
847 - 57th Street Saskatoon,
Saskatchewan Canada S7K 5Z2
1-866-727-5226

EMERGENCY TELEPHONE NUMBER

IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL
CAUTEC FREE DAY OR NIGHT, 1-613-996-6666

**Registration No.
31063 Pest Control Products Act**

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

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READ ENTIRE LABEL CAREFULLY BEFORE USE

SMOKE 41% GLYPHOSATE is a non-selective, non-residual herbicide containing 360 g/L glyphosate (free acid) as isopropylamine salt, formulated as a water-soluble liquid. It is used for the control of most herbaceous weeds in agricultural and industrial sites. The product is absorbed through the foliage and translocated throughout the plant down to the root system. Visible symptoms such as gradual wilting and yellowing are usually obvious within 2 to 4 days of application to annual weeds, but may not be apparent for 7 to 10 days on perennial weeds.

GENERAL PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN
- MAY CAUSE EYE IRRITATION
- HARMFUL IF SWALLOWED
- AVOID CONTACT WITH EYES AND SKIN
- WASH HANDS AND EXPOSED SKIN BEFORE EATING, DRINKING, OR SMOKING, AND AFTER WORK

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S contact 1-866-727-5226 or www.croplife.ca.

FOR GOOD AGRICULTURAL PRACTICE:

- WEAR GLOVES, COVERALLS, AND EYE PROTECTION DURING MIXING, LOADING, CLEANUP, AND REPAIR PROCEDURES
- WASH SPLASHES FROM SKIN AND EYES IMMEDIATELY

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN CONTACT WITH EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

EMERGENCY TELEPHONE NUMBER : IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL CAUTEC FREE DAY OR NIGHT, 1-613-996-6666

TOXICOLOGICAL INFORMATION

Treat Symptomatically.

ENVIRONMENTAL HAZARDS

SMOKE 41% GLYPHOSATE is toxic to aquatic organisms and non-target plants. Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment. Avoid all drift or contact with vegetation for which treatment is not intended as damage or destruction may occur.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic, or plastic-lined containers. DO NOT MIX, STORE, OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or the spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury if ignited by open flame, spark, welder's torch, lighted cigarette, or other ignition source.

STORAGE

KEEP AWAY FROM FOOD, DRINK, AND ANIMAL FEEDSTUFFS.

KEEP ONLY IN ORIGINAL CONTAINER, TIGHTLY CLOSED.

IN CASE OF SPILL:

Contact the provincial regulatory authorities and Great Northern Growers at 1-877-727-5226 in case of spill, and for clean up of spills. For environmental concerns call collect (CANUTEC) 1-613-996-6666 or *666 from a cell phone.

DISPOSAL OF CONTAINERS

RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location for the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsing to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the distributor and the provincial regulatory agency in case of spill, and for clean-up of spills.

RETURNABLE CONTAINERS

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

RETURNABLE-REFILLABLE CONTAINERS

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of spill, and for clean-up of spills.

NOTICE TO USER:

This control product is to be used only in accordance with the directions on this label. It is an offense under the Pest Control Products Act to use a control product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

PRECAUTIONS

Avoid contact with desirable vegetation by direct application or spray drift as severe injury or destruction may result. Avoid drift or overspray to non-target vegetation and wildlife habitats.

DO NOT USE IN GREENHOUSES.

Drain and clean sprayer and parts immediately after using this product.

Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Reduced results may occur if water which contains suspended soil is used; examples are water from ponds and ditches. Poor control may also occur when treating weeds heavily covered with dust.

GENERAL PRODUCT INFORMATION

SMOKE 41% GLYPHOSATE is a water-soluble herbicide for non-selective weed control. SMOKE 41% GLYPHOSATE is applied as a foliar spray for the control of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

SMOKE 41% GLYPHOSATE moves through the plant from the point of foliage contact into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds effects may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down the activity of this product and delay

visual effects of control. Visible effects are a gradual wilting and yellowing of the plant, which advances to complete browning of above ground growth and deterioration of underground plant parts.

SMOKE 41% GLYPHOSATE does not provide residual weed control. For subsequent residual weed control, apply a registered residual herbicide. Read and carefully observe cautionary statements and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. **Do not apply if rainfall is forecast for the time of application.**

DIRECTIONS FOR USE

GENERAL APPLICATION NOTES:

Results are best when weeds are actively growing. If weeds have been mowed, allow to return to recommended growth stage. Delay application until vegetation has emerged to the stage described for the control of such vegetation under the **ANNUAL** and **PERENNIAL WEED CONTROL** charts of this booklet to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or rootstocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when the treatment is made at the late growth stages approaching maturity.

Always use higher rates of SMOKE 41% GLYPHOSATE per hectare within the recommended range when weed growth is heavy or dense or weeds are growing in an undisturbed (uncultivated) area. **Do not treat weeds under poor growing conditions such as drought, flooding, frost, high temperatures, disease or insect damage as reduced weed control may result.** Reduced results may also occur when treating weeds heavily covered with dust. Heavy rainfall immediately after application may wash the product off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

SMOKE 41% GLYPHOSATE should only be mixed with products recommended on this label. Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

TANK MIXES

SMOKE 41% GLYPHOSATE may be used with the following surfactants: Agral 90[®], Ag-Surf[®], Companion™. See charts on **TANK MIXES FOR ANNUAL** and for **PERENNIAL WEED CONTROL**.

SMOKE 41% GLYPHOSATE may be used with the following herbicides:

Banvel[®], Oracle[®], Pardner[®], Pursuit[®], 2,4-D low volatile ester or amine formulations: See section on MINIMUM AND ZERO TILLAGE TANK MIXES.

Princep Nine-T[®], Simadex[®]: See section on **TREE, VINE, AND BERRY CROPS**.

DyCleer 480[®], Simazine 80W[®], Simadex[®] Flowable, 2,4-D amine: See section on **NONCROPLAND AND INDUSTRIAL USES**.

Always refer to the surfactant and herbicide labels for specific instructions regarding the use of that product.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Trade Name

Agral 90[®], DyCleer[®], Princep Nine-T[®]
Ag-Surf[®]
Banvel[®], Pursuit[®]
Companion™
Pardner[®], Simadex[®]
Oracle[®]

Trademark Owners

Syngenta
IPCO
BASF
Dow Chemical Co.
Bayer CropScience
Gharda USA, Inc.

VEGETATION CONTROLLED

SMOKE 41% GLYPHOSATE controls many annual and perennial grasses, broadleaf weeds and woody brush and trees when applied as recommended and under the conditions described. For information on how to control specific weeds, including herbicide rate, refer to the **ANNUAL WEED CONTROL** and **PERENNIAL WEED CONTROL** charts of this label. The following is a partial list of the weeds controlled:

Table 1: Annual weed control by SMOKE 41% GLYPHOSATE[®]

Weed Type: Annual Weeds	Genus and Species
Annual bluegrass	<i>Poa annua</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Broomcorn millet	<i>Panicum miliaceum</i>
Cheatgrass	<i>Bromus tectorum</i>
Chickweed	<i>Stellaria media</i>
Cocklebur	<i>Xanthium strumarium</i>

Weed Type: Annual Weeds

Corn Spurry
Common Lamb's quarters
Cow Cockle
Dodder
Downy brome
Eastern black flowering nightshade
Fall panicgrass
Fleabane (Canada)
Flixweed
Giant foxtail
Green foxtail
Green Smartweed
Hairy crabgrass
Hempnettle
Kochia
Lady's thumb
Narrow-leaf hawk's beard
Narrow-leaf vetch
Night flowering catchfly
Pennsylvania smartweed
Persian dandelion
Prickly lettuce
Ragweed (common)
Redroot Pigweed
Russian thistle
Shepherd's purse
Smooth crabgrass
Smooth Pigweed
Sowthistle (annual)
Stinkweed
Velvetleaf

Genus and Species

Spergula arvensis
Chenopodium album
Saponaria vaccaria
Cuscuta spp.
Bromus tectorum
Solanum ptycanthum
Panicum dichotomiflorum
Erigeron canadensis
Descurainia sophia
Setaria faberii
Setaria viridis
Polygonum scabrum
Digitaria sanguinalis
Galeopsis tetrahit
Kochia scoparia
Polygonum persicaria
Crepis tectorum
Vicia angustifolia
Silene noctiflora
Polygonum pennsylvanicum
Lolium persicum
Lactuca scariola
Ambrosia artemisiifolia
Amaranthus retroflexus
Salsola pestifer
Capsella bursa-pastoris
Digitaria ischaemum
Amaranthus hybridus
Sonchus oleraceus
Thlaspi arvense
Abutilon theophrasti

Weed Type: Annual Weeds

Volunteer barley
Volunteer canola
Volunteer corn
Volunteer flax
Volunteer wheat
Wild buckwheat
Wild mustard
Wild oats
Wild tomato
Yellow foxtail

Genus and Species

Hordeum spp.
Brassica spp.
Zea mays
Linum spp.
Triticum spp.
Polygonum convolvulus
Sinapsis arvensis
Avena fatua
Solanum triflorum
Setaria glauca

Table 2: Perennial weeds control by SMOKE 41% GLYPHOSATE®

Weed Type: Perennial Weeds

Alfalfa
Bluegrass (Canada)
Bluegrass (Kentucky)
Brome grass (smooth)
Canada thistle
Common cattail
Common milkweed
Cottontop
Curled dock
Dandelion
Foxtail barley
Hemp dogbane
Hoary cress
Japanese knotweed
Perennial sowthistle
Poison ivy
Purple loosestrife
Quackgrass

Genus and Species

Medicago sativa
Poa compressa
Poa pratensis
Bromus inermis
Cirsium arvense
Typha latifolia
Asclepias syriaca
Eriophorum chamissonis
Rumex crispus
Taraxacum officinale
Hordeum jubatum
Apocynum cannabinum
Cardaria draba
Polygonum cuspidatum
Sonchus arvensis
Rhus radicans
Lythrum salicaria
Elytrigia repens

Weed Type: Perennial Weeds

Toad flax

Wormwood (Absinth)

Yellow Nutsedge

Genus and Species*Linaria vulgaris**Artemisia absinthium**Cyperus esculentus***Table 3: Woody weeds, bush and tree control by SMOKE 41% GLYPHOSATE®**

Weed Type: Bush and Trees

Alder

Birch

Broadleaf meadowsweet

Canadian rhododendron

Cedar

Cherry

Douglas fir

Hemlock

Maple

Mountain-fly honeysuckle

Pine

Poplar

Raspberry

Salmonberry

Sheep laurel

Snowberry (western)

Sweet fern

Willow

Withrod

Genus and Species*Alnus spp.**Betula spp.**Spiraea latifolia**Rhododendron canadense**Thuja spp.**Prunus spp.**Pseudotsuga spp.**Tsuga spp.**Acer spp.**Lonicera villosa**Pinus spp.**Populus spp.**Rubus spp.**Rubus spectabilis**Kalmia angustifolia**Symphoricarpos occidentalis**Comptonia peregrina**Salix spp.**Viburnum cassinoides***Resistance Management Recommendations:**

For resistance management, SMOKE 41% GLYPHOSATE® Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to SMOKE 41% GLYPHOSATE® Herbicide and other Group 9 herbicides. The resistance biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of SMOKE 41% GLYPHOSATE® Herbicide or other Group 9 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based in an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement and resist weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance -management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance contact 1-866-375-4648 or www.croplife.ca.

APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS

GROUND BOOM AND BOOMLESS SPRAYERS

Mixing: For field or industrial type sprayers, fill the spray tank with one half the required amount of water. Add the proper amount of SMOKE 41% GLYPHOSATE® herbicide (see appropriate chart) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent any excessive foaming. Remove the hose from the tank immediately after filling to avoid back siphoning into water source (a one-way valve should be installed to prevent back siphoning). Use of mechanical agitators may cause excessive foaming. By-pass lines should terminate at the bottom of the tank.

Application: Use flat fan nozzles in boom sprayers. To control perennial weeds, woody brush, and trees as listed, apply SMOKE 41% GLYPHOSATE® in 50 to 300 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure. To control annual weeds as listed, apply SMOKE 41% GLYPHOSATE® in 50 L to 100 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure.

KNAPSACK SPRAYERS, HAND HELD & HIGH VOLUME EQUIPMENT

High volume spraying utilizes handguns or other suitable nozzle arrangements to apply a directed spray to weeds, woody brush, and trees. Use coarse sprays only.

Mixing: Mix the proper amount of SMOKE 41% GLYPHOSATE with water in a large container. Fill the sprayer with the mixed solution. Unless otherwise stated, make a 1% solution of SMOKE 41% GLYPHOSATE in water (1 L of

SMOKE 41% GLYPHOSATE in 100 L of water). A 2% solution (2 L of SMOKE 41% GLYPHOSATE in 100 L of water) should be used on harder to control perennials.

Application: Spray coverage should be uniform and complete. Apply on a spray-to-wet basis. Do not spray to the point of runoff. Hand gun application should be properly directed to avoid spraying desirable plants.

MIST BLOWERS

For control of woody weeds, brush, and trees listed in the **VEGETATION CONTROLLED** list, use the recommended rate of SMOKE 41% GLYPHOSATE in at least 200 L of water per hectare.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

WIPER, WICK AND ROLLER EQUIPMENT

These applicators apply SMOKE 41% GLYPHOSATE solution directly onto the weeds by contacting the weed with an absorbent material containing the herbicide solution. Weeds should be a minimum of 15 cm above the desired vegetation to prevent contact of SMOKE 41% GLYPHOSATE with the desired vegetation.

Mixing: Mix the proper amount of SMOKE 41% GLYPHOSATE with water in a large container. Use this mixed solution in the wiper, wick or roller equipment.

Application: These applicators can be used to control weeds in:

- Industrial sites, tree plantings, and non-crop sites as specified.
- The following agricultural crops:
 - o Apple, cherry, peach, pear and plum orchards, grape vineyards, soybeans, dry beans, strawberries, and Cranberries (note: applications must be made before initial pod set in soybeans and dry beans).

The applicator should be adjusted so that the contact point of the wiper, roller, or wick is at least 5 cm above the desirable vegetation. Droplets or foam of the SMOKE 41% GLYPHOSATE solution settling on desirable vegetation may result in discoloration, stunting or destruction. Best results are obtained when more of the weed is exposed to the herbicide solution. It is recommended that two applications be made in opposite directions, if possible. Weeds not contacted will not be affected. This may occur in dense clumps, severe infestation, or when the height of the weeds varies so that not all weeds are contacted. In these instances, a repeat treatment may be necessary.

AVOID CONTACT WITH DESIRABLE VEGETATION.

Wiper, Wick, Roller Application Notes:

- Maintain wiper equipment in good operating condition. Care must be taken with all types of wipers to ensure that the absorbent material does not become oversaturated, causing the herbicide to drip onto desirable vegetation.
- Avoid leakage or dripping onto desirable vegetation.
- Adjust height of wiper applicator to ensure proper contact with weeds.
- Keep wiping surfaces clean.
- Maintain recommended roller speed on roller applicators while in use.
- DO NOT use wiper equipment when weeds are wet.
- DO NOT operate equipment at ground speeds less than 4 or greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to ensure good coverage of weeds.
- Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.
- Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended SMOKE 41% GLYPHOSATE herbicide solution directly to the weed.
- Mix only the amount of solution to be used during a one day period, as reduced activity may result from use of leftover solution. Thoroughly drain and clean all equipment immediately after use.

AERIAL APPLICATION

Directions for Use (for additional information see section on Aerial Application for Industrial Rights-of-Way ONLY)

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400-600 microns) or very coarse (600-1000) range. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Aerial Use Precautions

Apply only when weather conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following: Volume: Apply the recommended rate in a spray volume of 30-100 L/ha.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of SMOKE 41% GLYPHOSATE accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

BUFFER ZONES:

- i) Aerial Application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h (preharvest) or 8 km/h (rights-of-way) at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572,1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.
- ii) Buffer Zones
Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies). Do not contaminate these habitats when cleaning and rinsing spray equipment or containers.

Agricultural, forestry and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
		Aquatic habitats	Terrestrial habitats
Agricultural crop system and ground boom application method			
Pre-seeding applications for cranberry, filberts, hazelnut and all other crops. Established pasture and summer fallow..	1	1	1
Canola – Roundup Ready hybrid for seed production	2	1	1
Filberts or hazelnut	4	1	1
Corn (glyphosate non-tolerant varieties including grain, silage and ornamental types), strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)	2	1	2

Agricultural, forestry and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:		
		Aquatic habitats	Terrestrial habitats	
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), corn-sweet (glyphosate tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, , corn (glyphosate tolerant varieties), forage grasses and legume including seed production	3	1	2	
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)	4	1	2	
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes	3	1	3	
Agricultural crop system and airblast application method (including mist blower)				
Pasture	1	20	30	
Turfgrass (Prior to establishment or renovation)	2	25	35	
Forest plant system and ground boom application method				
<i>Forest and woodlands > 500 ha</i> Site preparation	2	1	NR	
Forest plant system and airblast application method (including mist blower)				
<i>Forest and woodlands > 500 ha</i> Site preparation	2	1	NR	
Non-cropland system and ground boom application method				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	3*	
Non-cropland system and airblast application method (including mist blower)				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas	3	1	30*	
Agricultural crop system and aerial application method				
Corn (glyphosate non-tolerant varieties), corn-sweet (glyphosate tolerant varieties), , all other crops for pre-seeding treatments only	Wing type			
	Fixed and rotary wing	1	15	20
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
	Fixed wing	2	20	35
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30

Agricultural, forestry and non-cropland systems		Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
			Aquatic habitats	Terrestrial habitats
Forage grasses and legume including seed production	Fixed and rotary wing	1	20	40
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40
Summer fallow	Fixed wing	1	20	45
	Rotary wing	1	20	40
Corn (glyphosate tolerant varieties)	Fixed wing	2	20	50
	Rotary wing	2	20	45
Pasture	Fixed wing	1	30	70
	Rotary wing	1	30	55
Forestry system and aerial application method				
<i>Forest and woodlands >500 ha</i>	Fixed wing	2	10	NR
Site preparation	Rotary wing	2	1	NR
<i>Forest and woodlands >500 ha</i>	Fixed wing	2	5	NR
Site preparation	Rotary wing	2	1	NR
Non-cropland system and aerial application method				
Non-crop land and industrial uses: rights-of way areas only	Fixed wing	3	100	NR
	Rotary wing	3	60	NR

* Buffer zones for the protection of terrestrial habitats are not required for forestry uses or for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements and roads.

NR = Not Required

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

AGRICULTURAL AND CROPLAND USES

The following are use situations for SMOKE 41% GLYPHOSATE herbicide. The type of vegetation present and the use situation will dictate the choice of application equipment. Information on the equipment selected to apply SMOKE 41% GLYPHOSATE can be found in the APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section. Use rates can then be selected from the ANNUAL and PERENNIAL WEED CONTROL charts.

PREPLANT TREATMENT

SMOKE 41% GLYPHOSATE can be applied prior to planting of all crops for control of emerged weeds listed on the label. Ensure weeds are at the recommended growth stage at the time of application. Apply BEFORE seeding or transplanting crop.

SUMMER FALLOW

SMOKE 41% GLYPHOSATE may be applied in summer fallow to control weeds listed on the label. Ensure weeds are at the recommended growth stage and actively growing at the time of application. Reduced control may result if weeds are drought stressed. Repeat treatments may be necessary to control later germinating weeds.

MINIMUM AND ZERO TILLAGE SYSTEMS (ALL FIELD CROPS INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES AND CORN)

SMOKE 41% GLYPHOSATE may be applied before or after seeding but before crop emerges for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Weeds should be treated at the growth stage according to the **ANNUAL** and **PERENNIAL WEED CONTROL** charts. **DO NOT APPLY AFTER CROP EMERGENCE.**

Since SMOKE 41% GLYPHOSATE does not provide residual control, application too far in advance of seeding may allow weeds to germinate between application and crop emergence.

MINIMUM AND ZERO TILLAGE TANK MIXES

SMOKE 41% GLYPHOSATE Herbicide plus Pardner[®] (bromoxynil) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley, and oats. See chart on **TANK MIXES** for **ANNUAL WEED CONTROL.**

SMOKE 41% GLYPHOSATE Herbicide plus Pursuit[®] can be applied before or after seeding, but prior to crop emergence in soybeans. SMOKE 41% GLYPHOSATE herbicide will control emerged weeds listed on this label when applied as directed (see **VEGETATION CONTROLLED** lists). Pursuit[®] will control weeds germinating from

seed. Add the recommended rates of both products in 100 L of water/ha following the instructions on the Pursuit® herbicide label.

Refer to the Pursuit® label for further information on weeds controlled, application directions, and use precautions. Only SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT and WINTER WHEAT may be planted the season following a Pursuit® application. Winter wheat may be planted the same year as a Pursuit® application to soybeans, but not earlier than 120 days after the application.

DO NOT APPLY AFTER CROP EMERGENCE.

**Table 4: SMOKE 41% GLYPHOSATE® TANK MIXES for ANNUAL WEED CONTROL:
Summer fallow & minimum tillage systems treatment rates**

TANK MIXTURES	RATE L/ha	WEEDS CONCONTROLLED++	COMMENTS: (Apply in 50-100 L/ha water; add 350 mL/ha surfactant)
SMOKE 41% GLYPHOSATE + Banvel® or Oracle®	0.75 - 1.0 + 0.29	Volunteer cereals, wild oats, green foxtail, volunteer canola (rapeseed), wild mustard, flixweed*, lamb's quarters, lady's thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *SMOKE 41% GLYPHOSATE applied at 1.0 L/ha rate only. **Suppression only. See other tank mixtures for control options.
SMOKE 41% GLYPHOSATE + Pardner®	0.75 - 1.0 + 1.25	Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's thumb, stinkweed, wild buckwheat*, redroot pigweed**, kochia**, wild oats**	This tank mix for summer fallow use; and prior to planting wheat, oats, and barley in minimum tillage systems. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use SMOKE 41% GLYPHOSATE at 1.0L/ha rate for wild buckwheat control. **1.0L/ha rate, suppression only. See other tank mixtures for control options.

TANK MIXTURES	RATE L/ha	WEEDS CONCONTROLLED++	COMMENTS: (Apply in 50-100 L/ha water; add 350 mL/ha surfactant)
SMOKE 41% GLYPHOSATE® + 2,4-D#	0.75 - 1.0 + 1.2	Volunteer cereals, wild oats*, green foxtail*, volunteer canola (rapeseed), wild mustard, Flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters**, Russian thistle**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use SMOKE 41% GLYPHOSATE at 1.0 L/ha rate only for wild oat and green foxtail control. **Suppression only. See other tank mixtures for control options.

#0.56 kg ai/ha of 2,4-D. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

++For foxtail barley suppression, refer to chart on **ANNUAL WEED CONTROL**.

NOTE: All SMOKE 41% GLYPHOSATE herbicide tank mixtures for annual weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90®, Ag-Surf® and Companion™. Surfactant should be added at a rate of 350 mL per hectare in 50-100 L of clean water.

Table 5: SMOKE 41% GLYPHOSATE® tank mixtures for perennial weed control summer fallow or fall stubble

TANK MIXTURES	RATE L/ha	WEEDS CONCONTROLLED	COMMENTS:
SMOKE 41% GLYPHOSATE® + Banvel® or Oracle®	1.7 L/ha + 1.25 L/ha	Canada thistle, perennial sow thistle	Apply in 100-200 L/ha water; add 350 mL/ha surfactant Summer fallow: Cultivate in the spring and apply when majority of thistles are 15 to 25 cm tall, and before the bud stage. Cultivate 3 weeks after application. Fall stubble: Apply to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: All SMOKE 41% GLYPHOSATE® herbicide tank mixtures for perennial weed control require the addition of a

non-ionic surfactant registered for this use, such as Agral 90[®], Ag-Surf[®], or Companion[™].

Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mix.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

FALL STUBBLE

Apply in the fall as a postharvest stubble treatment for control of perennial weeds including quackgrass and Canada thistle. Allow the Canada thistle and quackgrass to regrow to 20-25 cm tall. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frost prior to treatment may decrease control.

SPOT TREATMENT (IN CROP)

SMOKE 41% GLYPHOSATE may be applied for the control of Canada thistle, quackgrass and other perennial weeds in forage crops, barley, wheat, oats, soybeans and legumes, including seed production. Treatments may be made up to heading of small grain, initial pod set on soybeans and legumes, silking of corn, and emergence of seed heads. Avoid drift beyond the treated area.

Application can be made using a boom sprayer, knapsack, or high volume equipment (see **APPLICATION AND MIXING INSTRUCTIONS** section). Applications should be made using the same growth stages as listed in the **ANNUAL** and **PERENNIAL WEED CONTROL** charts. Or, use a 1% solution for annual weeds and quackgrass and a 2% solution for other perennial weeds (a 1% solution equals 1 litre SMOKE 41% GLYPHOSATE[®] herbicide in 100 litres of spray solution). The 1% and 2% solutions should be applied to wet, but not to run off.

NOTE: THE CROP IN THE TREATED AREA WILL BE KILLED BY THE TREATMENT.

DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS BEFORE GRAZING IN, OR HARVESTING TREATED AREAS AS FORAGES.

FORAGE GRASSES AND LEGUMES

Use SMOKE 41% GLYPHOSATE[®] to control or suppress existing vegetation prior to emergence of legumes and grasses. If legumes and grasses are underseeded with a cover crop, SMOKE 41% GLYPHOSATE[®] must be applied prior to planting any cover crop.

PASTURE RENOVATION

SMOKE 41% GLYPHOSATE[®] may be used to control or suppress existing vegetation for zero tillage seeding of

legume or grass pasture into established sod for renovation. Weed growth should be at least 20 cm high and most weed seeds should have germinated at the time of spraying.

FORAGE SEED PRODUCTION (FOR SPOT TREATMENT)

SMOKE 41% GLYPHOSATE® may be applied as a spot treatment for control of perennial weeds such as quackgrass and Canada thistle in seed fields. Apply to weeds at least 20-25 cm in height but before emergence of seed head.

The crop in the treated area will be killed. For this reason, take particular care to avoid drift outside the treated area.

PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, DANDELION, TOADFLAX and MILKWEED; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, dandelion, toadflax and common milkweed, and season-long control of perennial sow thistle, SMOKE 41% GLYPHOSATE® can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low-linolenic acid varieties), lentils, peas, dry beans and soybeans. DO NOT apply to crops grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tilling may interfere with harvest operations. EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN THE ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

SMOKE 41% GLYPHOSATE® should be applied pre-harvest at 2.5 L/ha in 50 to 100 L/ha of clean water, by GROUND APPLICATION ONLY.

When to Apply: Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the **GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS** chart for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7-14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Use Precautions: Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g. sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife, should be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

DO NOT APPLY BY AIRCRAFT

Table 6: Guidelines for timing of preharvest applications

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL INDICATORS
WHEAT, BARLEY, OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including glyphosate tolerant varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linolenic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour, pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

Refer to the general guidelines for aerial application as well as specific instructions in this section.

RESTRICTED USE

AERIAL PREHARVEST APPLICATION

FOR PRAIRIE PROVINCES ONLY (Including PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators, and aerial application services, approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patterning) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 - 600 microns) or very coarse (600 - 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Applicators using this product must have successfully completed a SMOKE 41% GLYPHOSATE® aerial application training course.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the direct daily supervision of a qualified pilot.

DIRECTIONS FOR USE

SMOKE 41% GLYPHOSATE® may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. SMOKE 41% GLYPHOSATE® can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed),

flax (including low-linoleic acid varieties), lentils, peas, dry beans, and soybeans. DO NOT apply to any crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

SMOKE 41% GLYPHOSATE® should be applied at 2.5 L/ha in 20 - 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table **GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS** for visible indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 - 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Table 7: Guidelines for timing of preharvest applications (restricted use)

CROP(S)	PERCENT GRAIN MOISTURE	VISIBLE SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low-linoleic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown.
FORAGES	Not applicable	Normal stage for forage harvesting.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS (including glyphosate tolerant varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.

USE PRECAUTIONS:

AVOID DRIFT ON TO IMPORTANT WILDLIFE HABITATS. EXTREME CARE MUST BE TAKEN WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS.

Apply only in wind conditions in compliance with local and/or provincial regulations. Do not apply when other climatic conditions, including lesser wind velocities, will allow significant drift to occur.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that disperse spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. See # 1 of the NATURE OF RESTRICTION section for additional details.

Do not overspray or allow drift on to bodies of water, wetlands† and/or wetland vegetation (e.g., sloughs, swamps,

bogs, marshes, potholes), shelterbelts, woodlots and other cover on the edge of fields.

IN ORDER TO REDUCE THE DRIFT HAZARD TO NON-TARGET PLANTS AND AQUATIC VEGETATION IN THE HABITATS LISTED ABOVE, DO NOT APPLY WITHIN 100 METRES OF THE EDGE OF ANY OF THESE HABITATS. Do not apply directly to roadside ditches, or apply under conditions that would favour drift into roadside ditches.

†A wetland is any land where the water table stands at or above the land surface for at least part of the year, and contains vegetation associated with wetlands such as bulrushes, sedges, cattails, etc.

Ensure uniform application - To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills.

PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.

The maintenance of an organic coating (paint) which meets aerospace specification MILC-38412 may prevent corrosion.

TREE, VINE, and BERRY CROPS

SMOKE 41% GLYPHOSATE® controls annual and perennial weeds in established vineyards or orchards, in blueberry, cranberry, and strawberry, or for site preparation prior to transplanting tree or vine crops. See chart on **WEED CONTROL IN TREE, BERRY, and VINE CROPS** for rate and time of application information.

This product does not provide residual or pre-emergent weed control. Repeat applications may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. For subsequent weed control, follow a program using residual herbicides or use repeated applications of SMOKE 41% GLYPHOSATE®.

DO NOT APPLY MORE THAN 35 L OF SMOKE 41% GLYPHOSATE® HERBICIDE PER HECTARE PER YEAR. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF THE HERBICIDE SOLUTION, SPRAY DRIFT OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURE BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Allow annual and perennial weeds that have been mowed, grazed, or cut, time to regrow to recommended growth stage for treatment.

Applications may be made with boom sprayer, shielded sprayers, hand held and high volume orchard guns, or with wiper, wick, or roller equipment (orchards, vineyards, cranberry and strawberry only).

TREE PLANTING - Shelterbelts, Nursery Stock, Woody Ornamentals

SMOKE 41% GLYPHOSATE® may be applied to control annual and perennial weeds listed on this label. This may be used for site preparation prior to establishing plantations, or as a post directed spray in established plantations of the following species:

Table 8: Trees where SMOKE 41% GLYPHOSATE® may be applied to control

Deciduous Trees		Coniferous Trees	
Name	Genus and Species	Name	Genus and Species
Ash	<i>Fraxinus spp.</i>	Fir	<i>Abies spp.</i>
Caragana	<i>Caragana spp.</i>	Juniper	<i>Juniperus spp.</i>
Cherry	<i>Prunus spp.</i>	Pine	<i>Pinus spp.</i>
Elm	<i>Ulmus spp.</i>	Spruce	<i>Picea spp.</i>
Lilac	<i>Syringa spp.</i>	Yew	<i>Taxus spp.</i>
Maple	<i>Acer spp.</i>		
Mountain ash	<i>Sorbus americana</i>		
Poplar	<i>Populus spp.</i>		
Russian olive	<i>Elaeagnus spp.</i>		
Willow	<i>Salix spp.</i>		

SPRAY MAY CONTACT MATURE BROWN BARK ONLY.

Avoid contact with non-target plants, foliage, or suckers of established plantations.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

GLYPHOSATE TOLERANT CROPS

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA (I.E., VARIETIES WITH THE ROUNDUP® READY GENE).

WARNING: APPLY SMOKE 41% GLYPHOSATE® HERBICIDE ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to the **GENERAL PRODUCT INFORMATION, GENERAL APPLICATION NOTES, and APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS** sections.
- Apply SMOKE 41% GLYPHOSATE® herbicide in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visible yellowing may occur when SMOKE 41% GLYPHOSATE® herbicide is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT APPLY BY AIRCRAFT

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

Table 9: Weed control in canola with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.825 – 1.875	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's quarters, nonglyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, wild buckwheat*, shepherd's purse*, cow cockle*, night-flowering catchfly*, smartweed*, storksbill*, flaxweed*, narrow-leaf hawk's beard*, roundleaf, mallow* * *</p> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sowthistle, dandelion</p> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sowthistle* * * *</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure. Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use the 1.25 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd's purse, cow cockle and night-flowering catchfly at the 1-3 leaf stage of the crop or for control of smartweed at the 4-6 leaf stage.</p> <p>** A single application at the 1.25 L/ha rate is required. *** Sequential applications at the 1.25 L/ha rate are required. **** Sequential applications at the 1.25 L/ha rate are required or a single application of 1.875 L/ha.</p> <ul style="list-style-type: none"> • For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. • Maximum 2.5 L/ha is allowed for the post emergence use.

TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in glyphosate tolerant canola (i.e., varieties with the Roundup Ready Gene), apply a tank mixture of 0.28 L/ha of Lontrel® 360 with 1.25 L/ha of SMOKE 41% GLYPHOSATE® Herbicide, in 100 litres of water per hectare. Apply when canola is in the 2-6 leaf stage. Refer to the Lontrel® 360 and to the SMOKE 41% GLYPHOSATE® Herbicide labels for a list of other weeds controlled, timing of application, water volumes and use precautions.

Lontrel® is a registered trademark of Dow AgroScience LC.

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

WARNING: APPLY SMOKE 41% GLYPHOSATE® HERBICIDE ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY (i.e., VARIETIES WITH THE ROUNDUP READY GENE).

NOTE: ALWAYS USE PEDIGREED (i.e., CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIRCRAFT

Table 10: Weed control in soybean with the roundup ready gene

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Use 100-200 L/ha water volumes)
2.5	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's thumb, Pennsylvania smartweed, eastern black flowering nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, milkweed*, yellow nutsedge*, fall panicum, wild proso millet	A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. This second application must be made no later than the flowering stage of the soybean. *Suppression only
2.5 (x2)	First trifoliolate leaf stage through flowering	Perennial sowthistle, Canada thistle, wire-stemmed muhly	A second (sequential) application of 2.5 L/ha will improve control in heavy weed infestations. If sequential applications of 2.5 L/ha are used they should be at least 2 weeks apart for best results on perennial weeds. This second application must be made no later than the flowering stage of the soybean. Perennial sowthistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. Wire-stemmed muhly should be 10-20 cm in height and actively growing. Plants not fully emerged at the time of application will escape the treatment.

Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

Tank Mixtures for Roundup Ready Soybeans

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit® herbicide may be tank mixed with SMOKE 41% GLYPHOSATE® herbicide at a rate of 2.5 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit® and apply up to and including the 3rd trifoliolate leaf stage of the Roundup Ready soybeans in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit® as per instructions on the Pursuit® label and then add SMOKE 41% GLYPHOSATE® herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of SMOKE 41% GLYPHOSATE® herbicide and Pursuit® herbicide on glyphosate tolerant soybeans.

Only one application per season of SMOKE 41% GLYPHOSATE® herbicide at 2.5 litres per hectare tank mixed with Pursuit® herbicide at 0.16 to 0.21 litres per hectare is permitted.

Refer to the Pursuit® herbicide label for further safety precautions and handling instructions.

NONCROPLAND AND INDUSTRIAL USES

When applied as recommended under the conditions described, SMOKE 41% GLYPHOSATE® will control weeds in the non cropland and industrial uses as listed in the WEED CONTROL IN NONCROPLAND, INDUSTRIAL USES chart.

TURFGRASS

SMOKE 41% GLYPHOSATE® may be applied to control existing vegetation prior to turf grass establishment or renovation. DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.

Where existing vegetation is growing under field or unmowed conditions, apply SMOKE 41% GLYPHOSATE® to actively growing weeds at the growth stages given in the charts on ANNUAL and PERENNIAL WEED CONTROL. Where the vegetation is growing under mowed turf grass management, apply SMOKE 41% GLYPHOSATE® after omitting at least one regular mowing to allow sufficient growth for good spray interception and translocation into underground plant parts.

Tillage or renovation techniques, such as vertical mowing, coring or slicing, should be delayed for 7 days after application to allow proper translocation into the underground plant parts. Delay establishment of the turfgrass

to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient weed regrowth must be attained prior to application.

AVOID ALL CONTACT WITH DESIRABLE VEGETATION IN THE VICINITY OF THE RENOVATION OR ESTABLISHMENT AREA.

TREE INJECTION APPLICATIONS

See **VEGETATION CONTROLLED** lists for species controlled. Trees may be controlled if SMOKE 41% GLYPHOSATE® is injected directly into the trunk using suitable equipment that penetrates into the living tissue.

SMOKE 41% GLYPHOSATE® is to be used at a rate of 1 mL (undiluted product) per 10 cm of trunk diameter at chest height. The injections should be spaced evenly around the tree and below any major branches. Application may be done during periods of active growth and full leaf expansion.

Control of trees greater than 20 cm may not be acceptable. Total control may not be evident for 1-2 years following treatment. This treatment will only provide suppression of big-leaf maple; late fall application will provide optimum suppression of big-leaf maple.

CUT STUMP APPLICATIONS

See **VEGETATION CONTROLLED** lists for species controlled. Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Application must be made using low-pressure equipment (i.e. squirt bottle). Apply SMOKE 41% GLYPHOSATE® immediately to the surface of the freshly cut stump (i.e. within 5 minutes) at a rate of 0.5 mL SMOKE 41% GLYPHOSATE® for every 5 cm of trunk diameter at chest height. Treat only the cambial tissues (outer edge) of the cut surface. Do not treat the central area of the stump, or exposed roots or bark. This treatment may be made at any time of year, except during heavy sap flow or when freezing temperatures prevent application of SMOKE 41% GLYPHOSATE®. A water soluble dye added to the solution may be used as a treatment indicator. Total control may not be apparent until 1-2 years after treatment.

WOODY BRUSH AND TREES (FOLIAR APPLICATIONS)

Spray coverage should be uniform and complete. Do not spray to the point of run off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on the target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

For woody brush and trees, apply 3 to 6 litres of SMOKE 41% GLYPHOSATE[®] per hectare. Use ground boom or boomless equipment, or apply as a 1 to 2% solution using hand held high volume equipment. Use the 6 L/ha rate for maple, alder and willow* species, as well as hard to control perennial weed species. (* Suppression only).

INDUSTRIAL SITES, RIGHTS-OF-WAY, RECREATIONAL AND PUBLIC AREAS

SMOKE 41% GLYPHOSATE[®] may be applied to control brush, trees, and annual and perennial weeds listed on this label **in industrial and rights-of-way areas, such as:** railways, forest roadsides, pipelines, highways, pumping stations, petroleum tank farms, telephone and power rights-of-ways, etc., **and in recreational and public areas, such as:** parks, golf courses, schoolyards, airports and other public areas.

NOTE: For all industrial sites, rights-of-ways, recreational and public areas, repeat treatment may be necessary to control regeneration or new growth.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

GROUND APPLICATION FOR ALL NON-CROPLAND USES:

For woody brush and trees, apply SMOKE 41% GLYPHOSATE[®] at 3 to 6 L/ha using ground boom, or boomless, or mist blower equipment. Or, apply as a 1 to 2% solution using hand-held high volume equipment. Use the higher rate for maple, alder and willow* species, and for hard to control perennial weeds (*suppression only). Apply as directed to foliage of actively growing vegetation. Spray coverage should be uniform and complete. Do not spray to the point of runoff, or allow spray drift to contact desirable vegetation as severe injury or destruction may occur.

Mowed or tilled weeds should be allowed to reach optimum growth stage at time of application.

DO NOT APPLY UNDER WIND OR OTHER CONDITIONS THAT ALLOW DRIFT.

AERIAL APPLICATION: FOR INDUSTRIAL RIGHT-OF-WAY ONLY:

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at

the rate recommended for aerial application on this label. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

Use Precautions

Directions for Use:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical-resistant gloves, coveralls, and goggles or face shield during mixing/loading, cleanup, and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit, and vehicle cabs must be decontaminated regularly.

Product-Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a spray volume of 30-100 L/ha

Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of SMOKE 41% GLYPHOSATE® accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion. For woody brush and trees, apply 3-6 L/ha. Use 6 L/ha for maple, alder and willow* species, and for hard to control perennial weed species. Use the recommended rates of the herbicide in 30 to 100 litres of water per hectare. As density of vegetation increases, spray volume should be increased within the allowed range to ensure complete coverage. (*suppression only)

PURPLE LOOSESTRIFE CONTROL

- DO NOT TREAT PLANTS OVER OPEN WATER. SMOKE 41% GLYPHOSATE® herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using hand-held equipment, spray-to-wet.
- For wiper applications, see **WIPER, WICK AND ROLLER EQUIPMENT** section.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

Table 11: Weed control in non-cropland areas, and industrial uses

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Annual grasses and broad leaf weeds	2.25-3.5	50 - 100	1	Treat actively growing weeds.
Perennial Weeds	2.5	50 - 300	1	Treat actively growing weeds. Add 0.5% v/v of a recommended surfactant when using more than 150 L of water (see MINIMUM AND ZERO TILLAGE TANK MIXES) Use higher rate for heavy infestations and for long term control. See PURPLE LOOSESTRIFE CONTROL section for instructions on application. Summer through fall is optimum.
Quackgrass	4.75-7.0	50 - 300	2	
Canada thistle (bud stage)	4.75-7.0	100 - 300	2	
Purple loosestrife	6.0	300 - 600	1-2 (or 33% for wiper application)	
Other perennials	7.0-12	100 - 300	2	
Brush and Trees Birch, Cherry, Poplar, Western Snowberry, Willow	3.0-6.0	100 - 300	1-2	Summer through early fall.

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Maple, Raspberry/ Salmonberry, Alder	6.0	100 - 300	2	Late summer through fall. Fall is optimum.
Turfgrass renovation: Annual & Perennial Weeds	2.5 – 12.0	100 - 300	1-2	Use higher end of rate range for perennials.
Roadside vegetation (1-2 metres wide along shoulder)	1) 0.75 – 1.0 + 1.25 – 2.5L DyCleeer 480® Agricultural Herbicide OR 2) 0.75 – 1.0 + 0.30L DyCleeer 480® Agricultural Herbicide + 1.2L 2,4-D amine 500	25 – 150	-	Refer to tank mix section on product labels for specific weeds controlled. Refer to chart on ANNUAL WEED CONTROL for rates for specific weeds. For different 2,4-D formulations, adjust the rate accordingly. Do not apply to standing water.

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	Rate L/ha	Water Vol. L/ha		
Residual Control Annual & Perennial weeds.	2.5 – 12 + 1) 2.5 – 5.6 kg Simazine 80W® OR 2) 4.0 – 9.0 L Simadex® Flowable	200 – 400	-	The Simazine 80W® part of this tank mix will provide season- long control of most germinating broadleaf weeds and grasses, and may also provide post- emergent control of certain annual weeds. Do not apply to coarse, sandy soil or gravelly soil. One application per year. Use the most restrictive label directions for each product in the mix. For other Simazine 80W® products registered for this use, use rates equivalent to 2.0 - 4.5 kg Simazine 80W®/ha.

Table 12: Weed control in tree, vine and berry crops

CROP	RATE (L/Ha)	PRE-HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Apples, apricot, cherry (sweet/sour), peaches, pears, plums	2.25-12 (directed spray)	30	3	Annual and perennial weeds	Apply as directed spray with no more than 275 kPa pressure.
Apples, grapes	Tank Mix 2.25-12 + Simazine 80W [®] 2.0-4.5 Kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long pre-emergent control. Do not apply to coarse, sandy or gravelly soil. Use the more restrictive label directions for each product in the mix. DO NOT apply to orchards established less than 1 year or vineyards established less than 3 years. Simazine 80W [®] rate is equivalent to 2.25-5.0 kg/ha Princep Nine-T [®] ; or 4.0-9.0 kg/ha Simadex [®] .

CROP	RATE (L/Ha)	PRE-HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Grapes	2.25-12 (directed spray)	14	3	Annual and perennial weeds	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. Do not apply to vines that have been established less than 3 years.
Highbush (cultivated) blueberry	2.8-5.6 (directed spray)	30	1	Quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	1-2% solution (spot treatment)	Apply in non-bearing year only	1	Wood brush	Apply as directed spray in mid-summer of the vegetative (non-bearing) year. See AGRICULTURAL AND CROPLAND USES section for instructions on spot treatments.
Filberts, hazelnut (established plantations)	2.25-3.5 (directed spray)	14	-	Annual weeds	Use as directed spray, with no more than 275 kPa pressure.

CROP	RATE (L/Ha)	PRE-HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Walnut, chestnut, Japanese chestnut	2.25-12 (directed spray)	-	2	Annual and perennial weeds	<p>Apply late spring and fall, post-harvest but prior to a killing frost. Apply in 200-300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 2% wiper solution.</p> <p>See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.</p>
Cranberry	20% Solution (1L SMOKE 41% GLYPHOSA TE [®] + 4 L water)	30	1	Annual and perennial weeds	<p>Apply using wick or wiper applicators.</p> <p>See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.</p>

CROP	RATE (L/Ha)	PRE-HARVEST INTERVAL (DAYS)	MAX. APP. PER YEAR	WEED CONTROLLED	COMMENTS
Strawberry	1-2% Solution (spot treatment) 33% solution (wiper applicator)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage. See AGRICULTURE AND CROPLAND USES section for instructions on spot treatments. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper applications.

Table 13: Annual weed control

EQUIPMENT	WEEDS CONTROLLED	GROWTH TAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or boomless	Wild oats, green foxtail, volunteer barley volunteer wheat, volunteer canola, wild mustard, lady's thumb, stinkweed	Weeds up to 8 cm in height	0.75	50-100	For wild oats apply at 1 to 3 leaf stage. Add 350 mL of a surfactant registered for use such as Agral 90 [®] , Ag-Surf [®] , and Companion [™] . For heavy wild oat infestations use 1.0 L/ha rate.
	All annual grasses listed above plus foxtail barley* (suppression only) All annual broadleaf weeds listed above plus flixweed** and kochia**.	Weeds 8 cm to 15 cm	1.0	50-100	Add 350 mL of Surfactant registered for use as listed above. *Apply before initiation of seed head or senescence of the lower leaves. **Suppression only. Refer to higher rates of this table.

EQUIPMENT	WEEDS CONTROLLED	GROWTH TAGE	RATE L/Ha	WATER L/Ha	COMMENTS
	All annual grasses listed above plus downey brome, giant foxtail and Persian darnel. All annual broadleaf weeds listed above plus lamb' s quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, narrow-leaf hawk's beard***	Weeds up to 15 cm in height	1.25- 1.9	50-100	No additional surfactant required. *DO NOT use these rates on plants greater than 8 cm in height. **For 3 to 4 leaf stage use 1.9 L/ha rate. ***For weeds 8 cm to 15 cm in height use 1.9 L/ha.
	All annual grasses listed above plus crab grass and annual blue grass. All annual broadleaf weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow thistle, and narrow-leaved vetch	Weeds up to 15 cm in height	2.25	50-100	
	All annual grasses and broadleaf weeds listed above.	Weeds over 15 cm in height	3.5	50-100	

EQUIPMENT	WEEDS CONTROLLED	GROWTH TAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Wipers and wicks	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	This mixture is a 33% solution. Contact point for wiper or wick must be at least 5 cm above desirable vegetation. In severe weed infestations, reduce ground speed to ensure adequate control. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.
Rollers	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	0.5- 1.0	10	This mixture is a 5-10% solution. Roller speed 50-150 rpm. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications.

Table 14: Perennial weed control

EQUIPMENT	WEEDS CONTROLLED	GROWTH TAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or Boomless	Alfalfa	Early bud to full bloom stage. Fall Applications only.	3.7-5.0	50-300	Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see ALFALFA CONTROL WITH 2,4-D TANK MIX section under SPECIAL NOTES FOR PERENNIAL WEED CONTROL section.
Boom or Boomless	Canada thistle	Bud stage or beyond	4.75 - 7.0	100-300	Allow 5 days after application before tillage. Heavy frost prior to application may decrease control.
		Rosette stage (summer fallow)	2.5	50-100	Apply in clean water using flat fan nozzles. Ensure proper growth stage by performing last summer fallow tillage between July 5 and August 1st. Allow regrowth for a minimum of 5 weeks to reach rosette stage and a minimum of 15 cm in diameter. Allow 10 days after application before tillage. Treatment after a mild frost is possible if leaves are still green and actively growing but not after heavy damaging frost.

EQUIPMENT	WEEDS CONTROLLED	GROWTH TAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or Boomless	Dandelion	Up to 15 cm. in height Over 15 cm. in height Rosette to full bloom (preharvest)	2.5 3.7 2.5	50-100 50-300 50-100	Allow 3 or more days after treatment before tillage for all rates. Use the higher rates when infestations are heavy. Refer to DANDELION notes in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. Allow 7 or more days after treatment before tillage. For more information, see PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, AND DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Foxtail barley	Seeding to heading	2.5-5	50-100	Allow a minimum of 1 day after treatment before tillage or seeding. Use higher rates for larger more established plants, heavy infestations, or if plants are stressed.

EQUIPMENT	WEEDS CONTROLLED	GROWTH TAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or Boomless	Common Milkweed	Bud to full bloom (preharvest) Bud to full bloom	2.5 12	50-100 100-300	Reduced results may occur if sprayed after full bloom. Milkweed may not all be in the correct stage, therefore, repeat treatments may be required. Repeat treatment may be required. Allow 7 days or more after application before tillage. See PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.
Boom or Boomless	Toadflax	Vegetative stage (summer fallow) Bud to full bloom (pre-harvest)	2.5	50-100	Apply in clean water using flat fan nozzles. Allow 7 or more days after treatment before tillage in summer fallow. For more information, see Summer fallow Control under TOADFLAX in SPECIAL NOTES FOR PERENNIAL WEEDCONTROL section, or PREHARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX, and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE; AND HARVEST MANAGEMENT section.

EQUIPMENT	WEEDS CONTROLLED	GROWTH TAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Boom or Boomless	Quack grass control, light to moderate infestations	3 to 4 green leaves or more	2.5	50-300	Apply in clean water using flat fan nozzles. Allow 3 or more days after treatment before tillage. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information. For higher water volumes (ie., 150 300L/ha) an approved surfactant must be added at 0.5 L per 100L of clean water. (0.5% v/v). Refer to list of surfactants in QUACKGRASS part of SPECIAL NOTED FOR PERENNIAL WEED CONTROL section. See also below.
	Quack grass (long term control, heavy infestations, high water volumes)	3-4 green leaves or more	2.5 - 7.0	50-300	Allow 3 or more days after treatment before tillage. Rates higher than 2.5L/ha will provide more consistent, longer term control especially with heavy infestations and/or higher (150-300 L) water volumes. Refer to QUACKGRASS noted in SPECIAL NOTES FOR PERENNIAL WEED CONTROL for more information.

EQUIPMENT	WEEDS CONTROLLED	GROWTH TAGE	RATE L/Ha	WATER L/Ha	COMMENTS
	Other perennial weeds	Early heading or early bud stage (See VEGETATION CONTROLLED section)	7-12	100-300	Use higher rate for weeds beyond 8 cm in height or in heavy weed infestation. Allow 7 days after application before tillage. SMOKE 41% GLYPHOSATE® rate is equivalent to 70 to 120 mL/100 m2.
	Woody brush and trees	Actively growing from June through August	3-6	100-300	Use higher rate for maple, alder, Rubus species and willow*. Spray to wet.
High volume or knapsack	Woody brush and trees	Actively growing from June through August	1-2.0	100	This mixture is a 1 to 2% solution. Use higher rate for maple, alder, Rubus species and willow*. Spray to wet. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on high volume or knapsack applications.
Wipers and wicks	Perennial weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on wiper and wick applications.

EQUIPMENT	WEEDS CONTROLLED	GROWTH TAGE	RATE L/Ha	WATER L/Ha	COMMENTS
Rollers	Annual and perennial weeds	Weeds to be at least 15 cm above desirable vegetation	0.5-1.0	10	This mixture is a 5-10% solution. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on roller applications. This treatment will only suppress perennial weeds contacted. Roller speed 50-150 rpm.
Tree Injection	Trees*	During periods of active growth and full leaf expansion except during periods of heavy sap flow.	0.5 mL/ 5 cm of trunk diameter at chest height	None	Suitable equipment must be used to penetrate to living tissue. Space applications evenly around the circumference of the trunk below major branches. Control of trees with trunk diameters greater than 20 cm may not be acceptable. See APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS section for instructions on TREE INJECTION APPLICATIONS . *Suppression only for willow.

SPECIAL NOTES FOR PERENNIAL WEED CONTROL QUACKGRASS

For **season-long control on fall tilled ground**: Apply 2.5 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be

experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SURFACTANTS

The following is a list of approved surfactants for use with SMOKE 41% GLYPHOSATE® Herbicide for control of quackgrass:

Agral 90®
Companion™
Ag-Surf®

Always refer to surfactant label for specific instructions regarding use of that product.

CANADA THISTLE

Control of Canada thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SMOKE 41% GLYPHOSATE® HERBICIDE PLUS BANVEL® OR ORACLE® TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summer fallow or in postharvest stubble, apply 1.7 litres per hectare SMOKE 41% GLYPHOSATE® Herbicide plus 1.25 litres per hectare Banvel® or Oracle® in 100-200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90®, Ag-Surf® or Companion™. For best results in summer fallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

TOADFLAX

Control of Toadflax in a Summer Fallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summer fallow tillage as usual and perform the last tillage operation between July 10th and July 21st.
2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are a minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 2.5 to 5.0 litres per hectare SMOKE 41% GLYPHOSATE® Herbicide and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 2.5 to 5.0 litres per hectare SMOKE 41% GLYPHOSATE® Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14 day interval between application and planting is required.

Use the higher SMOKE 41% GLYPHOSATE® Herbicide rates when perennial grasses are prevalent.

ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to **PERENNIAL WEED CONTROL WITH SMOKE 41% GLYPHOSATE HERBICIDE®** table.

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow up tillage after application should be delayed 5 to 7 days for best results. See **ANNUAL AND PERENNIAL WEED CONTROL** tables for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required to control weeds regenerating from seeds or other underground parts.

Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only control emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.

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Companion™ and Lontrel® are the registered trademarks of Dow AgroSciences LLC

Aatrex Nine-O®, Agral®, DyCler®, Princep Nine-T® are the registered trademarks of Syngenta Crop Protection Canada Inc.

Ag-Surf® is a registered trademark of IPCO

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Oracle® is a registered trademark of Gharda

SMOKE 540

Liquid Herbicide

AGRICULTURAL and INDUSTRIAL

CAUTION



POISON

WARNING - EYE AND SKIN IRRITANT

REGISTRATION NO. 33697 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: Glyphosate, 540 grams acid equivalent per litre, present as potassium salt.

Water Soluble Herbicide for non-selective weed control

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING.

NET CONTENTS: 1 L to 1000 L

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED.

HARMFUL IF INHALED.

CAUSES EYE AND SKIN IRRITATION.

Avoid contact with eyes, skin or clothing.

Avoid inhaling spray mist.

Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and chemical resistant footwear during mixing, loading, application, clean-up and repair.

Gloves are not required during application within a closed cab. In addition, wear protective eyewear (goggles or face shield) during mixing and loading.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. For non-crop areas, DO NOT enter or allow worker entry into treated areas until sprays have dried.

Apply only when the potential for drift to non-target areas of human habitation and human activity is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at: www.croplife.ca.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL PRECAUTIONS

- **TOXIC** to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

In case of an emergency involving this product, call:

CANUTEC(613) 996-6666

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

For additional information on this or other Farmer's Business Network Canada, Inc. agricultural products, call 1-844-200-FARM (3276).

STORAGE

To prevent contamination, store this product away from food or feed. Soak up small amounts of spill with absorbent clays.

DISPOSAL

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer and the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

GROUP

9

HERBICIDE

SMOKE 540

Liquid Herbicide

AGRICULTURAL and INDUSTRIAL



CAUTION

POISON

WARNING - EYE AND SKIN IRRITANT

REGISTRATION NO. 33697 PEST CONTROL PRODUCTS ACT

ACTIVE INGREDIENT: Glyphosate, 540 grams acid equivalent per litre, present as potassium salt.

Water Soluble Herbicide for non-selective weed control

READ THE LABEL BEFORE USING.

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
T1V 1M7
1-844-200-FARM (3276)

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Smoke 540

1.0 PRODUCT DESCRIPTION

Water soluble herbicide for non-selective weed control in CROPLAND SYSTEMS AND IN NON-CROPLAND AREAS.

CROPLAND USES INCLUDE:

In cropping systems before planting of all crops; in minimum tillage systems; postemergent in Roundup Ready® canola and soybean; preharvest applications in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), peas, lentils, dry beans, soybeans, chickpeas, dried lupin, dried fava beans and forages; in pasture renovation; in forage, legume and grass establishments; in tree crops including apple, pear, cherry, plum, peach, apricot, filbert, hazelnut, walnut, chestnut, Japanese heartnut; in grapes, cranberries, blueberries and strawberry; in asparagus; in North American ginseng; in tree plantings; and grasses for seed production.

NON-CROPLAND USES INCLUDE:

Industrial; recreational, rights-of-way, and public areas; turf grass renovation.

Not for relabelling or repackaging.

2.1 EMERGENCY NUMBERS

In case of an emergency involving this product, call:

CANUTEC(613) 996-6666

Read NOTICE before buying or using. If NOTICE terms are not acceptable, return at once unopened.

2.2 INFORMATION

For additional information on this or other Farmer's Business Network Canada, Inc. agricultural products, call: 1-844-200-FARM (3276).

3.1 PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.
HARMFUL IF SWALLOWED.
HARMFUL IF INHALED.
CAUSES EYE AND SKIN IRRITATION.
Avoid contact with eyes, skin or clothing.
Avoid inhaling spray mist.

Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and chemical resistant footwear during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab. In addition, wear protective eyewear (goggles or face shield) during mixing and loading.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours. For non-crop areas, **DO NOT** enter or allow worker entry into treated areas until sprays have dried..

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at: www.croplife.ca

3.2 FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have a person dip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

3.3 TOXICOLOGICAL INFORMATION

Treat symptomatically.

3.4 ENVIRONMENTAL PRECAUTIONS

- **TOXIC** to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.
- To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay.
- Avoid application when heavy rain is forecast.
- Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

3.5 PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

3.6 STORAGE

To prevent contamination, store this product away from food or feed. Soak up small amounts of spill with absorbent clays.

3.7 DISPOSAL AND DECONTAMINATION

RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

RETURNABLE CONTAINERS:

Do not reuse container for any other purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on the disposal of unused, unwanted product, contact the manufacturer and the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for the clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

DIRECTIONS FOR USE

4.0 GENERAL INFORMATION

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

Do not apply this product using aerial spray equipment except under conditions as specified within this booklet.

Observe buffer zones specified in Section 5.3.

Smoke 540, a water soluble liquid, mixes readily with water for application as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

This herbicide moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Delay application until vegetation has emerged to the stages described for control of such vegetation under the “**Annual and Perennial Weed Control**” (section 7.0 and 8.0) to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per hectare within the recommended range when weed growth is heavy or dense, or weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This product does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Rainfall occurring within 60 minutes of treatment may result in reduced weed control. Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of run-off.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, Smoke 540 is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to Smoke 540 and other Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Smoke 540 or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options. Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276).

5.0 MIXING AND APPLICATION

5.1 PRECAUTIONS

ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

DO NOT USE IN GREENHOUSES. REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests

Clean sprayers and parts immediately after using this product by thoroughly flushing with water.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Apply only when the potential for drift to non-target areas of human habitation and human activity is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

NOTE: Use of this product in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

5.2 MIXING AND APPLICATION EQUIPMENT

MIXING WITH WATER

For ground or industrial type sprayers, fill the spray tank with one-half the required amount of water. Add the proper amount of herbicide, see “**Weed Control**” (sections 7.1 and 8.1) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent excessive foaming. Removing hose from tank immediately will avoid back siphoning into water source. Use of mechanical agitators may cause excessive foaming. Bypass lines should terminate at the bottom of the tank.

For use in knapsack sprayers, it is suggested that the proper amount of this herbicide be mixed with water in a larger container. Fill sprayer with the mixed solution.

TANK MIXING PROCEDURE

The following steps should be followed when adding tank mix partners, using a herbicide loading system or adding product directly into the tank:

1. Fill spray tank 3/4 full of water.
2. Start agitation and run for entire mixing and spraying operation.
3. Add required amount of the tank mix partner.
4. Flush herbicide loading tank and herbicide containers with water.
5. If using a herbicide loading system - ensure that the loading tank and lines to the pump are empty and flushed out with water before adding tank mix partner.
6. Add required amount of Smoke 540.
7. Flush herbicide loading tank and herbicide containers with water.
8. If using a herbicide loading system - ensure that the loading tank and lines to the pump are flushed with water and empty before starting spray operation.

Always start and end the mixing and spraying operation with a clean system.

APPLICATION EQUIPMENT

BOOM EQUIPMENT

For control of perennial weeds and woody brush and trees listed in this booklet using conventional boom equipment – apply this product in 50 to 300 litres of clean water per hectare as a broadcast spray using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

For control of annual weeds listed in this booklet using conventional boom equipment – Apply this product in 50 to 100 litres of clean water per hectare as a broadcast spray, except as otherwise stated on this label using no more than 275 kPa pressure. See “**Weed Control**” (sections 7.1 and 8.1) for rates to control specific weeds.

HAND HELD AND HIGH VOLUME EQUIPMENT (use coarse sprays only)

For control of weeds and woody brush and trees listed in the “Weed Control” section 6.0 of this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements – Unless otherwise specified, make a 0.67 percent solution of this product in water (0.67 litres of this product in 100 litres of water) and apply to foliage of vegetation to be controlled. For best results, use a 1.34 percent solution (1.34 litres of this product in 100 litres of water) on harder to control perennials such as field bindweed, hemp dogbane, milkweed and Canada thistle.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of run-off. Handgun applications should be properly directed to avoid spraying desirable plants.

SELECTIVE EQUIPMENT

Selective equipment such as **WIPER** and **ROLLER** applicators can be used for weed control in soy and dry beans, orchards, vineyards, cranberries, strawberries and non-crop areas. For information regarding use of this product with selective equipment, refer to “**Selective Equipment**” (section 9.12).

AERIAL EQUIPMENT

Do not use human flaggers.

Aerial application can only be used for weed control in preharvest situations. Refer to sections 5.3, and 9.9.2 for more information.

Directions for use

Apply only by fixed-wing or rotary aircraft which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Ensure that the maximum boom width does not exceed 65% of the wing span. Nozzle type, size and orientation must be configured to deliver a droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 - 1000) range. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate(s) recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS). The use of spotter planes is recommended.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR IS MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking.

Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) or obtain technical advice from the distributor or your provincial agricultural representative.

Application of this product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 30-100 litres per hectare.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

5.3 BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies).

Agricultural and non-cropland systems	Maximum number of applications	Buffer Zones (metres) Required for the Protection of:	
		Aquatic habitats	Terrestrial habitats
Agricultural crop system and ground boom application method			
Rye, cranberry, pasture, summer fallow, all other crops for pre-seeding treatments only, filberts or hazelnut at pre-seeding only, ginseng new garden	1	1	1
Ginseng - existing established garden, Canola – Roundup Ready hybrid for seed production	2	1	1
Filberts or hazelnut	4	1	1
Corn (glyphosate non-tolerant varieties including grain, silage and ornamental types), strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)	2	1	2

Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, chickpea, lupin (dried), fava bean (dried), asparagus, forage grasses and legume including seed production		3	1	2
Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)		4	1	2
Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes		3	1	3
Agricultural crop system and airblast application method (including mist blower)				
Pasture		1	20	30
Turfgrass (Prior to establishment or renovation)		2	25	35
Non-cropland system and ground boom application method				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	3*
Non-cropland system and airblast application method (including mist blower)				
Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	30*
Agricultural crop system and aerial application method	Wing type			
Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
	Rotary wing	2	20	30
Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
	Rotary wing	3	20	40

* Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements, roads, and training grounds and firing ranges on military bases.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

6.0 WEEDS CONTROLLED

This product controls many annual and perennial grasses, broadleaf weeds, and woody brush and trees when applied as recommended and under conditions described. For information on how to control specific weeds including herbicide rate, refer to “**Annual Weed Control**” and “**Perennial Weed Control**” (sections 7.0 and 8.0). The following is a partial list of weeds controlled:

6.1 ANNUAL WEEDS

ANNUAL GRASSES

Barnyard Grass <i>Echinochloa crusgalli</i>	Persian Darnel <i>Lolium persicum</i>
Blue Grass (annual) <i>Poa annua</i>	Volunteer Barley <i>Hordeum spp.</i>
Crab Grass (large) <i>Digitaria sanguinalis</i>	Volunteer Corn <i>Zea mays</i>
Crab Grass (smooth) <i>Digitaria ischaemum</i>	Volunteer Wheat <i>Triticum spp.</i>
Downy Brome-grass <i>Bromus tectorum</i>	Wild Oats <i>Avena fatua</i>
Fall Panicum <i>Panicum dichotomiflorum</i>	Wild Proso Millet <i>Panicum miliaceum</i>
Giant Foxtail <i>Setaria faberii</i>	Yellow Foxtail <i>Setaria glauca</i>
Green Foxtail <i>Setaria viridis</i>	OTHER Dodder <i>Cuscuta spp.</i>

ANNUAL BROADLEAF WEEDS

Chickweed <i>Stellaria media</i>	Pennsylvania Smartweed <i>Polygonum pennsylvanicum</i>
Cleavers <i>Galium aparine</i>	Prickly Lettuce <i>Lactuca scariola</i>
Cocklebur <i>Xanthium strumarium</i>	Ragweed (common) <i>Ambrosia artemisiifolia</i>

Corn Spurry <i>Spergula arvensis</i>	Redroot Pigweed <i>Amaranthus retroflexus</i>
Cow Cockle <i>Saponaria vaccaria</i>	Round-Leaved Mallow <i>Malva pusilla</i>
Eastern Black Nightshade <i>Solanum ptycanthum</i>	Russian Thistle <i>Salsola pestifer</i>
Fleabane (Canada) <i>Erigeron canadensis</i>	Shepherd's Purse <i>Capsella bursa-pastoris</i>
Flixweed <i>Descurainia sophia</i>	Smooth Pigweed <i>Amaranthus hybridus</i>
Green Smartweed <i>Polygonum scabrum</i>	Sowthistle (annual) <i>Sonchus oleraceus</i>
Hempnettle <i>Galeopsis tetrahit</i>	Stinkweed <i>Thlaspi arvense</i>
Kochia <i>Kochia scoparia</i>	Storksbill <i>Erodium cicutarium</i>
Lady's-Thumb <i>Polygonum persicaria</i>	Velvetleaf <i>Abutilon theophrasti</i>
Lamb's-quarters (common) <i>Chenopodium album</i>	Volunteer Canola (rapeseed) <i>Brassica spp.</i>
Narrow-leaved Hawk's Beard <i>Crepis tectorum</i>	Volunteer Flax <i>Linum spp.</i>
Narrow-leaved Vetch <i>Vicia angustifolia</i>	Wild Buckwheat <i>Polygonum convolvulus</i>
Night-flowering Catchfly <i>Silene noctiflora</i>	Wild Mustard <i>Sinapis arvensis</i>
	Wild Tomato <i>Solanum triflorum</i>

6.2 PERENNIAL WEEDS PERENNIAL GRASSES/SEDGES

Blue Grass (Canada) <i>Poa compressa</i>	Foxtail Barley <i>Hordeum jubatum</i>
Blue Grass (Kentucky) <i>Poa pratensis</i>	Quackgrass <i>Elytrigia repens</i>
Brome Grass (smooth) <i>Bromus inermis</i>	Wire-Stemmed Muhly <i>Muhlenbergia frondosa</i>
Cattail (common) <i>Typha latifolia</i>	Yellow Nutsedge <i>Cyperus esculentus</i>
Cottongrass <i>Eriophorum chamissonis</i>	

PERENNIAL BROADLEAVED WEEDS

Alfalfa <i>Medicago spp.</i>	Milkweed (common) <i>Asclepias syriaca</i>
Curled Dock <i>Rumex crispus</i>	Poison Ivy <i>Rhus radicans</i>
Dandelion <i>Taraxacum officinale</i>	Purple Loosestrife <i>Lythrum salicaria</i>
Field Bindweed <i>Convolvulus arvensis</i>	Sow Thistle (perennial) <i>Sonchus arvensis</i>
Hemp Dogbane <i>Apocynum cannabinum</i>	Thistle (Canada) <i>Cirsium arvense</i>
Hoary Cress <i>Cardaria draba</i>	Toad Flax <i>Linaria vulgaris</i>
Knotweed (Japanese) <i>Polygonum cuspidatum</i>	Wormwood (Absinth) <i>Artemisia absinthium</i>

6.3 WOODY BRUSH AND TREES

Alder <i>Alnus spp.</i>	Pine <i>Pinus spp.</i>
Birch <i>Betula spp</i>	Poplar <i>Populus spp.</i>
Broadleaved meadowsweet <i>Spiraea latifolia</i>	Raspberry/Salmonberry <i>Rubus spp.</i>
Cedar <i>Thuja spp.</i>	Rhododendron (Canadian) <i>Rhododendron canadense</i>
Cherry <i>Prunus spp.</i>	Sheep laurel <i>Kalmia angustifolia</i>
Douglas Fir <i>Pseudotsuga spp.</i>	Snowberry (Western) <i>Symphoricarpos occidentalis</i>
Hemlock <i>Tsuga spp.</i>	Sweet fern <i>Comptonia peregrina</i>
Maple <i>Acer spp.</i>	Willow <i>Salix spp.</i>
Mountain-fly honeysuckle <i>Lonicera villosa</i>	Withrod <i>Viburnum cassinoides</i>

CROPLAND USES

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR.

7.0 ANNUAL WEED CONTROL

The following tables provide rates and specific application instructions for control of the annual weeds listed.

7.1 ANNUAL WEED CONTROL WITH SMOKE 540

RATE (L/ha)	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50-100 L/ha water)
0.5	Weeds up to 8 cm in height	Wild oats, green foxtail, volunteer barley, volunteer wheat Non-Roundup Ready volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed	For wild oats apply at 1- to 3- leaf stage. Add 350 mL of a surfactant registered for use such as Agral 90, Ag Surf, or Companion For heavy wild oat infestations use 0.67 L/ha rate.
0.67	Weeds 8 cm to 15 cm in height	All annual grasses listed above. All annual broadleaved weeds listed above plus flixweed*, and kochia*	Add 350 mL of surfactant registered for use as listed above. * Suppression only. Refer to higher rates of this table or tank mix table (section 7.2) for control options.

0.83 – 1.27	Weeds up to 15 cm in height	<p>All annual grasses listed above plus downy brome, giant foxtail, and Persian darnel.</p> <p>All annual broadleaved weeds listed above plus cleavers, lamb's-quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**, and narrowleaved hawk's beard***</p>	<p>No surfactant required.</p> <p>For tank mix weed control options see section 7.2.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p>
1.5	Weeds up to 15 cm in height	<p>All annual grasses listed above plus crab grass and annual blue grass</p> <p>All annual broadleaved weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sowthistle, and narrowleaved vetch</p>	For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).
2.33	Weeds over 15 cm in height	All annual grasses and broadleaved weeds listed above	For additional annual broadleaved weed control options, refer to tank mix table (section 7.2).

NOTE: For spot treatment, 0.5 to 2.33 litres per hectare is approximately equivalent to 5 – 23 mL/100m², respectively.

Agral is a registered trademark of Syngenta Group Company.

Ag Surf is a registered trademark of Interprovincial Cooperative Ltd.

Companion is a trademark of Dow AgroSciences LLC.

7.2 ANNUAL WEED CONTROL WITH SMOKE 540 TANK MIXTURES

FOR SUMMERFALLOW & MINIMUM TILLAGE SYSTEMS

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + Banvel® II Herbicide	0.5 – 0.67 + 0.29	Volunteer cereals, wild oats, green foxtail Non- Roundup Ready® volunteer canola (rapeseed), wild mustard, flixweed*, lamb's-quarters, lady'sthumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix is registered for summerfallow use only . Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * Smoke 540 applied at 0.67 L/ha rate only. ** Suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant-see list in section 7.3.
Smoke 540 + Banvel® II Herbicide	0.61 – 1.27 + 0.31	Volunteer cereals, wild oats, green foxtail, downy brome, Persian darnel Non- Roundup Ready® volunteer canola (rapeseed), wild mustard, flixweed, lamb's-quarters, lady'sthumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed, wild buckwheat*, smartweed	Use this tank mix prior to seeding in wheat, barley, rye, oats, field corn only (do not apply to sweet corn) . Certain broadleaved crops such as lentils, peas, canola and flax can be injured by a pre-seeding application and so should not be planted to a field receiving this treatment. Annual grasses - apply any time between emergence and heading.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
			<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>The higher rate should be applied when weeds are under poor growing conditions such as drought.</p> <p>*1- to 4- leaf stage.</p>
Smoke 540 + Pardner Herbicide	0.5 – 0.67 + 1.25	Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady’s-thumb, stinkweed, wild buckwheat* Redroot pigweed**, kochia**, wild oats**	This tank mix is registered only for use in summerfallow, and prior to wheat, oats and barley in minimum tillage systems. Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * Use Smoke 540 at 0.67 L/ha rate only for wild buckwheat control. ** 0.67 L/ha rate, suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant- see list in section 7.3

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + 2,4-D ^A	0.83 – 1.27 + 0.6 – 0.9 ⁴ or 1.2 – 1.5 ⁵	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel Volunteer canola, (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady'sthumb, stinkweed, kochia, lamb's-quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrowleaved hawk's beard***, Volunteer Roundup Ready canola (1-4 leaf stage) ⁴ , bluebur ⁴ , burdock ⁴ , cocklebur ⁴ , common plantain ⁴ , daisy fleabane ⁴ , false flax ⁴ , false ragweed ⁴ , goat's beard ⁴ , mustards ⁴ (except dog and tansy), prickly lettuce ⁴ , ragweeds ⁴ , Russian pigweed ⁴ , shepherd's purse ⁴ , stinging nettle ⁴ , sweet clover ⁴ , thyme-leaved spurge ⁴ , wild radish ⁴ , wild sunflower ⁴	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. No surfactant required. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate. ⁴ 2,4-D at 0.6 – 0.9 L/ha (280 – 420 g ai/ha). ⁵ 2,4-D at 1.2 – 1.5 L/ha (560 – 700 g ai/ha). Use a minimum of 80 L/ha water when using 2,4-D amine formulations at these rates. Use this tank mix prior to seeding or after seeding but before crop emergence in wheat, winter wheat, barley and rye.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
		Volunteer Roundup Ready canola (4-6 leaf stage) ⁵ , annual sowthistle ⁵ , common chickweed ⁵ , common purslane ⁵ , dog and tansy mustard ⁵ , oak-leaved goosefoot ⁵ , common groundsel ⁵ , hairy galinsoga ⁵ , hawkweed ⁵ , heal-all ⁵ , knotweed ⁵ , peppergrass ⁵ , pineapple weed ⁵ , prostrate pigweed ⁵ , purslane ⁵ , sheep sorrel ⁵ , smartweed ⁵ , tumble pigweed ⁵ , velvetleaf ⁵ , volunteer canola (rapeseed) ⁵	
Smoke 540 + 2,4-D ^B	0.5 – 0.67 + 1.2	Volunteer cereals, wild oats*, green foxtail* Volunteer canola (rapeseed), wild mustard, flixweed, redroot pigweed, lady'sthumb, stinkweed, kochia Lamb's-quarters**, Russian thistle**	This tank mix is registered for summerfallow use only. Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. * Use Smoke 540 at 0.67 L/ha rate only for wild oat and green foxtail control. ** Suppression only. See other tank mixtures for control options. Add 350 mL/ha of surfactant-see list in section 7.3

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + MCPA ^C 500 g/L formulation; if another formulation is used, adjust rate accordingly.	0.83 – 1.27 + 0.5 – 0.7 ¹ OR 0.5 – 1.0 ²	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel Volunteer canola (rapeseed) (non- Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrowleaved hawk's beard*** Volunteer Roundup Ready canola (1-4 leaf stage) ^{1,2} , bluebur ³ , burdock ³ (before 4 leaf stage), false flax ³ , flixweed ³ , lamb's quarters ³ , mustards ³ (except dog and tansy), prickly lettuce ³ , ragweeds ³ , redroot pigweed ³ , Russian pigweed ³ , shepherd's purse ³ , stinkweed (field pennycress) ³ , vetch ³ , wild radish ³ , wild sunflower ³	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. No surfactant required. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate. ¹ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to peas. ² MCPA at 0.5 – 1.0 L/ha (250 – 500 g ai/ha) prior to wheat, barley, oats, corn (field and sweet) ^C , rye and flax. ³ MCPA at 0.7 – 1.0 L/ha (350 – 500 g ai/ha) only. Use this tank mix prior to seeding in wheat, barley, rye, oats, corn (field and sweet) ^C , flax and field peas ^C .

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + Buctril M Herbicide	0.83 – 1.27 + 0.5 – 1.0 ¹	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel.</p> <p>Volunteer canola (rapeseed) (non-Roundup Ready), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrowleaved hawk's beard***</p> <p>Volunteer Roundup Ready Canola (1-4 leaf stage)^{1,2}</p> <p>Seedlings up to the 4-leaf stage²: green smartweed, pale smartweed, lady's thumb, cow cockle, redroot pigweed, flixweed, bluebur, shepherd's purse, kochia³, Russian thistle³, scentless chamomile⁴, volunteer sunflower, night flowering catchfly, cocklebur, velvetleaf⁵, ball mustard, American nightshade</p> <p>Seedlings up to the 6leaf stage²: wild tomato Seedlings up to the 8 leaf stage²: wild buckwheat, tartary</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>No surfactant required.</p> <p>* DO NOT use these rates on plants greater than 8 cm in height.</p> <p>** For 3- to 4-leaf stage use 1.27 L/ha rate.</p> <p>*** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate.</p> <p>¹ Buctril M at 0.5 – 1.0 L/ha (280 – 560 g ai/ha) for all crops listed.</p> <p>² Buctril M at 1.0 L/ha (560 g ai/ha only).</p> <p>³ Spray before plants are 5 cm high.</p> <p>⁴ Spring annuals only.</p> <p>⁵ Spray before plants are 8 cm high.</p> <p>Use this tank mix prior to seeding in wheat, barley, rye, oats, corn, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue,</p>

	<p>buckwheat, common buckwheat, stinkweed, wild mustard, wormseed mustard, lamb's quarters, common ragweed, common groundsel</p> <p>Perennials (top growth)²: Canada thistle, perennial sowthistle</p>	<p>meadow foxtail, seedling tall fescue, seedling meadow bromegrass, seedling streambank wheatgrass and reed canary grass.</p>
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TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + MCPA amine (500 g/L formulation; if another formulation is used, adjust rate accordingly).	0.83 – 1.27 + 0.5 – 0.7	Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, Persian darnel. Volunteer canola (rapeseed)(non Roundup Ready), wild mustard, flixweed, redroot pigweed, lady’s thumb, stinkweed, kochia, lamb’s quarters, hempnettle, Russian thistle, volunteer flax, common ragweed*, Canada fleabane, wild buckwheat**, narrowleaved hawk’s beard*** Volunteer Roundup Ready canola (1-4 leaf stage) ³ , bluebur ⁴ , burdock ⁴ (before 4-leaf stage), false flax ⁴ , flixweed ⁴ , lamb’s quarters ⁴ , mustards ⁴ (except dog and tansy), prickly lettuce ⁴ , ragweeds ⁴ , redroot pigweed ⁴ , Russian pigweed ⁴ , shepherd’s purse ⁴ , stinkweed ⁴ (field pennycress), vetch ⁴ , wild radish ⁴ , wild sunflower ⁴	Weeds should be less than 15 cm tall and actively growing for best results. Use higher rate if weeds are beyond 8 cm in height. No surfactant required. * DO NOT use these rates on plants greater than 8 cm in height. ** For 3- to 4-leaf stage use 1.27 L/ha rate. *** For weeds 8 cm to 15 cm in height use 1.27 L/ha rate. ³ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to lentils and chickpeas. ⁴ MCPA amine at 0.7 L/ha (350 g ai/ha) only. Use this tank mix prior to seeding in lentil and chickpea. Under drought conditions, deep seeding and/or brief rain showers after seeding may cause injury to emerging seedlings in sprayer overlaps. No surfactant required.

TANK MIXTURES	RATE (L/ha)	WEEDS CONTROLLED*	COMMENTS (Apply in 50-100 L/ha water)
Smoke 540 + Express Toss-N-Go Herbicide Or Express Toss-N-Go Dry Flowable 75% Herbicide	0.83 – 1.27 + 10 g/ha (7.5 g ai/ha)	Volunteer cereals, Canada thistle (suppression), cow cockle, wild buckwheat, Canada fleabane common ragweed narrow-leaved hawk's beard, dandelion, downy brome, flixweed, giant foxtail, green foxtail, hempnettle, kochia, lady's thumb, lamb's quarters, persian darnel, redroot pigweed, Russian thistle, stinkweed, volunteer canola, volunteer flax, wild mustard, wild oats	Use this tank mix in summerfallow or prior to seeding wheat and barley . Refer to Express Toss-N-Go label for the appropriate weed growth stage. Add 350 mL/ha of surfactant –see list in section 7.3

* For foxtail barley, refer to “**Perennial Weed Control**” table (section 8.1).

^B 0.56 kg ai/ha of 2,4-D. ^B, ^A Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

^C Use only amine formulations of MCPA prior to seeding in corn and field peas.

Banvel II is a registered trademark of BASF Corporation.

Pardner and Buctril are registered trademarks of Bayer.

Express and Toss-N-Go are registered trademarks of FMC Corporation.

7.3 SURFACTANT INFORMATION

NOTE:

Addition of Surfactant – Smoke 540 tank mixtures for annual weed control may require the addition of a surfactant registered for use such as Agral 90, AgSurf or Companion. Refer to Section 7.2 for recommendations. Surfactant should be added at a rate of 350 millilitres per hectare, in 50 100 litres of clean water.

7.4 ADDITIONAL IMPORTANT INFORMATION FOR ANNUAL WEED CONTROL

Smoke 540 applied alone will not control volunteers from crops containing the Roundup Ready varieties.

Allow at least 1 day after treatment before tillage.

Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds, in some situations.

For additional information and precautions, refer to “**General Information**” and “**Mixing and Application**” (sections 4.0 and 5.0).

7.5 WEED CONTROL IN ROUNDUP READY® CANOLA VARIETIES

WARNING: APPLY SMOKE 540 ON ROUNDUP READY® CANOLA VARIETIES ONLY

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) ROUNDUP READY® CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS ROUNDUP READY® WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- **For additional information and precautions refer to “General Information” and “Mixing and Application” (sections 4.0 and 5.0).**
- Apply Smoke 540 in Roundup Ready® canola varieties only as directed in the following weed control table.
- Some short-term, visual yellowing may occur when Smoke 540 is applied at the late application (4 to 6 leaf stage) of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT APPLY BY AIR.

The following table describes the rate and specific application instructions for control of annual and perennial weeds in Roundup Ready® canola varieties.

WEED CONTROL IN ROUNDUP READY CANOLA VARIETIES

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED	COMMENTS (Apply in 50 –100 L/ha water)
0.55 – 1.27	0 to 6 leaf	<p><u>Annual Grasses</u> Wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p><u>Annual Broadleaves</u> Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb’squarters, non-Roundup Ready volunteer canola (rapeseed), hempnettle, lady’s-thumb, kochia, chickweed, corn spurry, wild tomato, cleavers*, wild buckwheat*, shepherd’s purse*, cow cockle*, night-flowering catchfly*, smartweed*, stork’s-bill*, flixweed*, narrow-leaved hawk’s beard*, round-leaved mallow***</p> <hr/> <p><u>Perennials (suppression)**</u> Canada thistle, perennial sow thistle, dandelion</p> <hr/> <p><u>Perennials (season-long control)</u> Quackgrass**, foxtail barley***, Canada thistle****, perennial sow thistle****</p>	<p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p> <p>Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>* Use 0.83 L/ha for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd’s purse, cow cockle and nightflowering catchfly at the 1– to 3leaf stage of the crop or for control of smartweed at the 4– to 6-leaf stage.</p> <p>** A single application of 0.83 L/ha rate is required.</p> <p>*** Sequential applications of 0.83 L/ha rate are required.</p> <p>**** Sequential applications of 0.83 L/ha or a single application of 1.27 L/ha are required.</p> <p>For sequential applications, ensure the crop has not advanced beyond the recommended growth stage.</p> <p>Maximum 1.66 L/ha is allowed for the postemergence use.</p>

7.5.1 TANK MIXTURES

For season long control of top growth of Canada thistle and control of wild buckwheat in Roundup Ready® canola varieties, apply a tank mixture of 0.28 L/ha of Lontrel 360 Herbicide with 0.83 L/ha of Smoke 540, in 100 litres of water per hectare. Apply when canola is in the 2- to 6-leaf stage. When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

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7.5.2 ROUNDUP READY® HYBRID CANOLA SEED PRODUCTION

For Use only in Roundup Ready® Hybrid Canola Seed Production Systems

Apply using ground boom spray equipment.

Smoke 540 may be applied for the control of non- Roundup Ready® canola pollen parental line(s) in hybrid canola seed production fields containing both Roundup Ready® line(s) and non- Roundup Ready® line(s).

When pollination is complete or near completion, non- Roundup Ready® canola pollen parental line(s) may be controlled with an application of 0.83 to 1.67 litres per hectare of Smoke 540 applied in 50 to 200 litres per hectare water.

Sequential applications (**maximum 2 applications**) may be used for the control of pollen parental line(s) but the total maximum rate applied must not exceed 1.67 litres per hectare. Allow at least 5 days between sequential applications.

7.6 WEED CONTROL IN ROUNDUP READY SOYBEAN VARIETIES

WARNING: APPLY SMOKE 540 ON ROUNDUP READY SOYBEAN VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E., CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY. SOYBEANS WHICH ARE NOT DESIGNATED AS ROUNDUP READY WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED*	COMMENTS (Use 100 – 200 L/ha water volumes)
1.67	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, common lamb's quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, Eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum,	<p>¹ A single application of 1.67 L/ha will provide suppression only.</p> <p>² For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be applied at least 2 weeks after the first application.</p>

RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED*	COMMENTS (Use 100 – 200 L/ha water volumes)
		<p>wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, Russian thistle, non- Roundup Ready® canola (rapeseed), hempnettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night flowering catchfly, stork's bill, flixweed, narrow leaved hawk's-beard</p> <p>common milkweed^{1,2}, yellow nutsedge^{1,2}, field bindweed², perennial sow thistle, Canada thistle. wire-stemmed muhly.</p> <p>Bur cucumber (<i>Sicyos angulatus</i>)³</p> <p>Volunteer adzuki beans (<i>Vigna angularis</i>)⁴</p> <p>Biennial Wormwood (<i>Artemisia biennis</i>)⁵</p>	<p>A second 1.67 L/ha application may be used for late weed flushes emerging after the initial treatment.</p> <p>Any second application made must be applied no later than the flowering stage of the soybean.</p> <p>Common milkweed should be 15-60 cm in height and actively growing.</p> <p>Yellow nutsedge should be 5 - 15 cm in height and actively growing.</p> <p>Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing.</p> <p>Wire-stemmed muhly should be 10-20 cm in height and actively growing.</p> <p>Plants not fully emerged at the time of application will escape treatment.</p> <p>³Sequential applications of 1.67 L/ha followed by 1.67 L/ha at the 1-18 leaf stage. Applications should be at least 2 weeks apart for best results.</p>

			<p>⁴For control of volunteer adzuki beans (unifoliolate to the 4th trifoliolate leaf stage) apply 1.67 L/ha. A second 1.67 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliolate to fourth trifoliolate leaf stage and actively growing</p> <p>⁵ Only one application per season at 1.67L/ha. Biennial wormwood should be at 2-8 leaf stage and actively growing.</p>
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RATE (L/ha)	GROWTH STAGE OF CROP	WEEDS CONTROLLED*	COMMENTS (Use 100 – 200 L/ha water volumes)
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3.33	First trifoliate leaf stage through flowering	All weeds listed above plus horse-nettle ⁶ and tall waterhemp ⁶⁷	<ul style="list-style-type: none"> • Only one application per season at 3.33 L/ha. • Common milkweed should be 15-60 cm in height and actively growing. • Yellow nutsedge should be 515 cm in height and actively growing. • Plants not fully emerged at the time of application will escape treatment. <p>⁶ For season-long control of horse-nettle (<i>Solanum carolinense</i>) (2- to 12-leaf stage) or, for control of tall waterhemp (<i>Amaranthus tuberculatos</i>) (up to and including the 18-leaf stage) apply 3.33 L/ha. Alternatively, sequential applications of 1.67 L/ha followed by 1.67 L/ha may be applied. Applications should be at least 2 weeks apart for best results.</p> <p>⁷ For the control of tall waterhemp use the higher rate if weeds are beyond the 6-leaf stage.</p>
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*Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

7.6.1 TANK MIXTURES

Smoke 540 Plus Pursuit® Herbicide

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit herbicide may be tank mixed with Smoke 540 at a rate of 1.67 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit and apply up to and including the 3rd trifoliolate leaf stage of the Roundup Ready soybeans varieties in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit as per instructions on the Pursuit label and then add Smoke 540 as per instructions on this label.

A PHI of 100 days is required for the tank mix of Smoke 540 and Pursuit herbicide on Roundup Ready soybeans.

Only one application per season of Smoke 540 at 1.67 litres per hectare tank mixed with Pursuit herbicide at 0.16 to 0.21 litres per hectare is permitted.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Smoke 540 Plus FirstRate™ Herbicide Water Dispersible Granule (For Use in Eastern Canada Only)

For added residual control of common ragweed, velvetleaf, cocklebur, jimsonweed and giant ragweed, FirstRate Herbicide Water Dispersible Granule may be tank mixed with Smoke 540 at a rate of 0.83 - 1.67 liters per hectare. Use 20.8 grams per hectare of FirstRate Herbicide Water Dispersible Granule.

Do not harvest soybean plants for forage or hay. Do not harvest soybeans for 65 days after application.

Only one application per season of Smoke 540 tank mixed with FirstRate Herbicide Water Dispersible Granule is permitted.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

Smoke 540 and Classic 25 DF Herbicide*

For season-long control of dandelion, annual sow thistle, and yellow nutsedge*, apply Classic 25 DF Herbicide at 36 grams per hectare plus either Smoke 540 at 1.67 litres per hectare. Add a non-ionic surfactant such as Agral 90, Citowett Plus, or AgSurf at 0.2% v/v. Apply when soybeans are in the 1-3 trifoliolate stage; dandelions and annual sow thistle less than 15 cm tall and across; and up to the 8 leaf stage for yellow nutsedge. USE THIS TANK MIXTURE ONLY ON SOYBEANS WITH THE ROUNDUP READY® TRAIT.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

*Use this tank mix only in cases of heavy infestation of yellow nutsedge.

Smoke 540 plus Sencor® 75 DF Herbicide for Control of Spreading Atriplex (Eastern Canada only)

For the control of spreading atriplex, apply a preplant application of Sencor 75 DF Herbicide at 0.75 - 1.11 kg product per hectare on medium textured soils or 1.11 – 1.5 kg product per hectare on fine textured soils plus Smoke 540 at 1.67 litres per hectare. Do not apply on coarse textured soils. Apply when spreading atriplex is up to the 10-leaf stage of growth. Only one application per year is permitted.

Refer to the Sencor 75 DF Herbicide label for further use directions, safety precautions and handling instructions. Consult Table entitled "Sencor 75 DF Alone: Preemergence Application" for specific rates based on soil types and organic matter.

Smoke 540 plus Assure® II Herbicide

RATE	GROWTH STAGE OF CROP	WEEDS CONTROLLED*	COMMENTS
1.67 – 3.33 L/ha Smoke 540 + 0.25 - 0.38 L/ha Assure II Herbicide	First trifoliolate leaf stage through flowering.	Volunteer Roundup Ready corn. Apply at the 2- to 6leaf stage of the weed.	See additional information following this table.

*Sure Mix may or may not be added to this tank mix

* Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 centimetres in height will be inconsistent, although some weeds may be controlled.

Volunteer Roundup Ready Corn Control

For control of volunteer Roundup Ready corn, Assure II herbicide may be tank mixed with Smoke 540. Use 1.67 to 3.33 litres per hectare Smoke 540 and 0.25 - 0.38 litre per hectare of Assure II herbicide.

The higher rate of Assure II may be required when there are high populations of volunteer Roundup Ready corn, other grass weeds are present or when conditions at application are not favorable for weed growth.

Apply in 100 to 300 litres per hectare of clean water.

Mixing: Add and mix Assure II herbicide as per instructions on the Assure II herbicide label and then add Smoke 540 as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliolate leaf stage through flowering and when the volunteer Roundup Ready corn is at the 2- to 6-leaf stage.

A PHI (preharvest interval) of 80 days is required for the tank-mix of Smoke 540 and Assure II herbicide on Roundup Ready soybeans.

When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

FirstRate is a trademark of Dow AgroSciences LLC.

Pursuit is a registered trademark of BASF.

Sencor is a registered trademark of Bayer.

Assure and Classic are registered trademarks of E.I. du Pont de Nemours and Company.

8.0 PERENNIAL WEED CONTROL

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR.

When applied as recommended under the conditions described, this product will control the perennial weeds listed in the following table.

8.1 PERENNIAL WEED CONTROL WITH SMOKE 540

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	

<p>Quackgrass (control, light to moderate infestations)</p>	<p>3 to 4 green leaves or more</p>	<p>1.67</p>	<p>50 - 300</p>	<p>Apply in clean water using flat fan nozzles.</p> <p>Allow 3 or more days after treatment before tillage.</p> <p>Refer to “Quackgrass” notes in section 8.2.1 for more information.</p> <p>For higher volumes (i.e., 150 – 300 L/ha) an approved surfactant must be added at 0.5 L per 100 L of clean water (0.5% v/v). Refer to list in section 8.2.2. See also below.</p>
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WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/h)	WATER VOLUME (L/ha)	
Quackgrass (long term control, heavy infestations, high water volumes)	3 to 4 green leaves or more	1.67 4.67	50 - 300	<p>Allow 3 or more days after treatment before tillage.</p> <p>Rates higher than 1.67 L/ha will provide more consistent, longer term control, especially with heavier infestations and/or higher water volumes (i.e., 150 – 300 L/ha).</p> <p>Refer to “Quackgrass” notes in section 8.2.1 for more information.</p>
Canada Thistle	Rosette stage (summerfallow)	1.67	50 - 100	<p>Apply in clean water using flat fan nozzles.</p> <p>Allow 10 or more days after treatment before tillage.</p> <p>Refer to “Canada Thistle” notes in section 8.2.3 for more information.</p>
Canada Thistle	Bud stage or beyond	3.1 7 –	100 - 300	<p>Allow 5 or more days after treatment before tillage.</p>
Field Bindweed	Full bloom or beyond	4.67 8.0	100 - 300	<p>Allow 7 or more days after treatment before tillage.</p>
Common Milkweed*	Bud to full bloom (preharvest)	1.67	50 – 100	<p>See “Preharvest Treatment” (section 9.9) for more information.</p>
	Bud to full bloom	8.0	100 - 300	<p>Allow 7 or more days after treatment before tillage.</p> <p>Reduced control may occur after full bloom.</p> <p>Common milkweed may not all be in the correct stage, therefore, repeat treatments may be required.</p>
Toadflax	Vegetative Stage (summerfallow)	1.67	50 - 100	<p>Apply in clean water using flat fan nozzles.</p>

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
	Bud to full bloom (preharvest)			<p>Allow 7 or more days after treatment before tillage in summerfallow.</p> <p>For more information, see “Toadflax Control” (section 8.2.4), or “Preharvest Treatment” (Section 9.9).</p>
Alfalfa	<p>Early bud to full bloom stage</p> <p>Fall applications only</p>	2.47 – 3.33	50 - 300	<p>Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present.</p> <p>For spring applications and control in minimum tillage systems using a 2,4-D tank mix, see section 8.2.6.</p>
Dandelion	<p>< 15 cm</p> <p>> 15 cm</p> <p>Rosette to full bloom (preharvest)</p>	<p>1.67</p> <p>2.47 – 3.33</p> <p>1.67</p>	<p>50 – 100</p> <p>50 – 300</p> <p>50 - 100</p>	<p>Allow 3 or more days after treatment before tillage for all rates.</p> <p>Use the higher rate when infestations are heavy.</p> <p>Refer to “Dandelion” notes in section 8.2.5 for more information.</p> <p>Allow 7 or more days after treatment before tillage. For more information, see “Preharvest Treatment” (section 9.9).</p>
Foxtail Barley	Seeding to heading	1.67 – 3.33	50 - 100	<p>Allow a minimum of 1 day after treatment before tillage or seeding.</p> <p>Use higher rates for larger, more established plants, heavy infestations or if plants are stressed.</p>

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Other Perennials (see listing section 6.2)	Early heading or early bud stage	4.67 - 8	100 - 300	Allow 7 or more days after treatment before tillage.

***NOTE:** For spot treatment, mix 80 millilitres of product in 5 litres of clean water per 100 m² (1.67 – 8 litres per hectare is approximately equivalent to 17 – 80 mL/100m², respectively).

8.2 SPECIAL NOTES FOR PERENNIAL WEED CONTROL

8.2.1 QUACKGRASS

For **season-long control on fall tilled ground**: Apply 1.67 litres per hectare of this product in spring prior to seeding. Apply in 50 to 100 litres per hectare of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4 to 5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 centimetres.

NOTE: This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

8.2.2 SURFACTANT INFORMATION

The following is a list of approved surfactants for use with Smoke 540 for control of quackgrass:

Agral 90

Companion Ag Surf

Always refer to surfactant label for specific instructions regarding use of that product.

8.2.3 CANADA THISTLE

Control of Canada Thistle at the rosette stage: to ensure the proper timing of application the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 15th and August 1st.
2. **Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15 centimetres in diameter and in the rosette stage of growth.**

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

SMOKE 540 PLUS BANVEL II HERBICIDE TANK MIXTURES

For control of Canada thistle (and perennial sow thistle) in summerfallow or in postharvest stubble, apply 1.13 litres per hectare Smoke 540 plus 1.25 litres per hectare Banvel II Herbicide in 100 – 200 litres per hectare of clean water. In addition, add 350 millilitres per hectare of a non-ionic surfactant registered for use with this product, such as Agral 90, Ag Surf or Companion.

For best results in summerfallow, cultivate in the spring and apply when the majority of thistles are 15 centimetres to 25 centimetres tall and before the bud stage. Cultivate 3 weeks after application.

In postharvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

8.2.4 TOADFLAX

Control of Toadflax in a Summerfallow Vegetative Stage. To ensure the proper timing of application, the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 10th to July 21st.

2. Allow toadflax to regrow for a minimum of 4 to 5 weeks until they are minimum of 15 centimetres tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

8.2.5 DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

8.2.6 ALFALFA CONTROL WITH 2,4-D TANK MIX

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 1.67 to 3.33 litres per hectare Smoke 540 and 1.2 to 2.4 litres per hectare of any 500 grams per litre 2,4-D amine or low volatile ester formulation in 100 to 200 litres of water per hectare. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e., 1.2 litres per hectare) and 1.67 to 3.33 litres per hectare Smoke 540. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank mix, and a 14 day interval between application and planting is required.

Use the higher Smoke 540 rates when perennial grasses are prevalent.

8.2.7 ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to “**Perennial Weed Control with Smoke 540**” (section 8.1).

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 litres per hectare of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow-up tillage after application should be delayed 5 to 7 days for best results. See “**Weed Control**” tables (sections 7.1 and 8.1) for specific tillage interval for each weed.

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

9.0 CROPLAND SITUATIONS

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION & MIXING AND APPLICATION SECTIONS (3.0, 4.0 and 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION. DO NOT APPLY BY AIR EXCEPT FOR PREHARVEST AERIAL APPLICATION (SECTION 9.9.2).

This product can be applied as a broadcast spray or spot treatment prior to planting all crops, postharvest to annual crops, preharvest in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, soybeans, dry beans and forages, and in summerfallow. It may also be applied as a broadcast spray in Roundup Ready® canola or soybean varieties (sections 7.5 and 7.6). It may be applied as a directed spray in orchards, vineyards, blueberries and strawberries, and using selective equipment in soy and dry beans, orchards, vineyards, cranberries and strawberries (refer to specific sections below for more information). **For specific instructions on weed control in the following cropping situations, always refer to “Annual and Perennial Weed Control” (sections 7.0 and 8.0) for more information.**

9.1 PRIOR TO PLANTING – ALL CROPS

This product may be applied prior to planting all crops for control of emerged weeds listed on this label. Ensure weeds are at the desired stage at the time of application. This product does not provide preemergent weed control and newly germinating weeds may be a problem in the crop. **APPLY BEFORE SEEDING OR TRANSPLANTING.**

9.1.1 PRIOR TO PLANTING – TANK MIXES* - SOYBEANS

***TANK MIXES – WHEN APPLIED AS A TANK-MIX COMBINATION, READ AND OBSERVE ALL LABEL DIRECTIONS, INCLUDING RATES, PERSONAL PROTECTIVE EQUIPMENT, RESTRICTIONS AND PRECAUTIONS FOR EACH PRODUCT USED IN THE TANK-MIX. ALWAYS USE IN ACCORDANCE WITH THE MOST RESTRICTIVE LABEL RESTRICTIONS AND PRECAUTIONS.**

WHERE TANK MIX PARTNER LABELS REFER TO ONLY THE OLDER (360 G/L) GLYPHOSATE PRODUCTS, EG ROUNDUP ORIGINAL OR ROUNDUP TRANSORB, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.

Smoke 540 plus Pursuit Herbicide

Smoke 540 plus Pursuit Herbicide can be applied prior to or after seeding, but before crop emergence. Smoke 540 will control emerged weeds listed on this label when applied as directed (refer to Annual and Perennial Weed control sections in the Smoke 540 product label). Pursuit Herbicide will control weeds germinating from seed.

ONLY SOYBEANS, WHITE BEANS, KIDNEY BEANS, PROCESSING PEAS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 100 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE.

Smoke 540 plus metribuzin (Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide, or Lexone DF Herbicide Dispersible Granules)

For burndown and residual control of selected annual weeds taller than 4 cm in soybeans, apply Smoke 540 in tank mix with Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide or Lexone DF Herbicide as a preplant surface or pre-emergence application before crop emergence.

Smoke 540 plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in soybeans. Apply Smoke 540 in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.15– 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

Perennial weeds such as quack grass may not be controlled with lower rates of Smoke 540. Use higher rates of Smoke 540 if perennial weeds are present.

Smoke 540 plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus metribuzin (Sencor 75 DF Herbicide, Sencor 500F Flowable Herbicide, Sencor 480F Flowable Herbicide, Sencor 480 Soybean Flowable Herbicide, or Lexone DF Herbicide)

For burndown and residual control of selected annual weeds in soybeans.

Apply as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence. Perennial weeds such as quack grass may not be controlled with lower rates of Smoke 540.

Smoke 540 plus linuron

For burndown and residual control of selected annual weeds apply Smoke 540 plus linuron after seeding but before crop emergence.

Smoke 540 plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with Smoke 540. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

Smoke 540 plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence. **For conservation tillage systems:** Apply this tank mixture in a minimum of 200 L/ha of total volume.

9.1.2 PRIOR TO PLANTING – TANK MIXES* - CORN

***TANK MIXES – WHEN APPLIED AS A TANK-MIX COMBINATION, READ AND OBSERVE ALL LABEL DIRECTIONS, INCLUDING RATES, PERSONAL PROTECTIVE EQUIPMENT, RESTRICTIONS AND PRECAUTIONS FOR EACH PRODUCT USED IN THE TANK-MIX. ALWAYS USE IN ACCORDANCE WITH THE MOST RESTRICTIVE LABEL RESTRICTIONS AND PRECAUTIONS.**

WHERE TANK MIX PARTNER LABELS REFER TO ONLY TO OLDER (360 G/L) GLYPHOSATE PRODUCTS, EG ROUNDUP ORIGINAL OR ROUNDUP TRANSORB, ENSURE THAT THE LABEL RATE IS ADJUSTED TO COMPENSATE FOR THIS MORE CONCENTRATED PRODUCT.

Smoke 540 plus Dual Magnum Herbicide or Dual II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn. Apply Smoke 540 in tank mix with Dual Magnum or Dual II Magnum at 1.25 to 1.75 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of Smoke 540. Use higher rates of Smoke 540 if perennial weeds are present.

Smoke 540 plus Dual Magnum Herbicide or Dual II Magnum Herbicide plus Aatrex Liquid 480 Herbicide

For burndown and residual control of selected annual weeds in corn. Apply Smoke 540 in tank mix with Dual Magnum Herbicide or Dual II Magnum Herbicide at 1.25 – 1.75 L/ha plus Aatrex Liquid 480 Herbicide at 2.1 - 3.1 L/ha as a preplant surface (up to 30 days before planting) or pre-emergence application before crop emergence.

NOTE: The use on corn is for EASTERN CANADA ONLY.

Perennial weeds such as quack grass may not be controlled with lower rates of Smoke 540. Use higher rates of Smoke 540 if perennial weeds are present.

Smoke 540 plus Primextra II Magnum Herbicide

For burndown and residual control of selected annual weeds in corn apply Smoke 540 plus Primextra II Magnum preplant surface or pre-emergence application before crop emergence. This tank mixture requires the use of a surfactant, either Agral 90 or Ag-Surf. See mixing instructions for more information.

Perennial weeds such as quack grass may not be controlled with lower rates of Smoke 540. Use higher rates of Smoke 540 if perennial weeds are present.

Smoke 540 plus Fieldstar Herbicide

For burndown and residual control of selected annual weeds apply Smoke 540 plus Fieldstar Herbicide as a preplant surface or pre-emergence application before crop emergence.

Smoke 540 plus linuron herbicide

For burndown and residual control of selected annual weeds apply Smoke 540 plus linuron herbicide after seeding but before crop emergence.

Smoke 540 plus Converge Pro Herbicide or Converge 75 WDG Herbicide

Surface Preplant:

CONVERGE 75 WDG Herbicide can be applied to the soil surface up to 14 days prior to planting. CONVERGE 75 WDG Herbicide must be tankmixed with atrazine when applied as a surface preplant application. When weed growth is present at the time of application, Smoke 540 can be added to the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine treatment for burndown control of these weeds. Do not incorporate.

Preemergence:

Converge Pro Herbicide or Converge 75 WDG Herbicide can also be applied after planting to just prior to crop emergence. Atrazine and/or Smoke 540 can be tank mixed with pre-emergent applications of Converge Pro Herbicide or Converge 75 WDG Herbicide.

Apply Converge Pro Herbicide at 165-220 mL per hectare, or Converge 75 WDG Herbicide at 105-140 g per hectare, tankmixed with Smoke 540 at 1.67 L per hectare for burndown control of emerged weeds in all tillage management systems and improved control of established dandelion in zero-tillage management systems. A three-way tankmix of Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine + Smoke 540 can be used to provide residual control of the weeds listed in the Converge Pro Herbicide or Converge 75 WDG Herbicide + atrazine section.

Smoke 540 Liquid Herbicide plus Axiom DF Herbicide

Preplant Surface:

For use in conservation tillage, minimum-tillage or no-tillage crop production systems, when weeds are present at the time of application, apply the Axiom DF Herbicide treatment in tank mixture with Smoke 540. Apply Axiom DF Herbicide in a minimum of 200 L/ha of total volume.

Preemergence:

Smoke 540 plus Axiom DF Herbicide may be applied to the soil surface as a broadcast spray after planting of the crop, but prior to weed or crop emergence.

For conservation tillage systems:

Apply this tank mixture in a minimum of 200 L/ha of total volume.

Sencor and Axiom are registered trademarks of Bayer.

Lexone is a registered trademark of E.I. du Pont de Nemours and Company.

Dual, Magnum and Primextra are registered trademarks of Syngenta Group Company.

Fieldstar is a trademark of Dow Agrosciences LLC.

9.2 POSTHARVEST STUBBLE TREATMENT

This product may be applied in the fall as a postharvest stubble treatment for control of perennial weeds such as quackgrass and Canada thistle. Allow weeds to regrow to the desired stage (20 to 25 centimetres tall for quackgrass and Canada thistle) before application and ensure they have a high proportion of green colouration. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frosts prior to application may decrease control.

9.3 SPOT TREATMENT (IN-CROP)

This product can be applied as an in-crop spot treatment in barley, corn, oats, soybeans, wheat, strawberry, blueberry, forage grasses and legumes including seed production. Applications should be made using the same rates and at the same growth stages as listed in the “**Weed Control**” tables (sections 7.1 and 8.1) or use a 0.67 percent solution for annual weeds and quackgrass and a 1.34 percent solution for other perennial weeds (a 0.67 percent solution equals 0.67 litres of Smoke 540 in 100 litres of spray solution). 0.67 and 1.34 percent solutions should be applied to wet, but not run-off. Applications can be made using a boom sprayer, hose and handgun, or hand sprayer in accordance with instructions in “**Application Equipment**” (section 5.2).

9.3.1 GRAZING RESTRICTIONS

Applications can be made up to heading of small grains, initial pod set on soy and dry beans, silking of corn and emergence of seed heads. The crop in the treated area will be killed. Take care to avoid drift for the same reason. **DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS FOR SMOKE 540 TO TRANSLOCATE INTO ALL PLANT PARTS BEFORE GRAZING OR HARVESTING TREATED AREAS IN FORAGES.**

9.4 SUMMERFALLOW TREATMENT

This product, or labeled tank mixtures, may be applied in summerfallow to control weeds listed on this label. Ensure weeds are at the desired growth stage and actively growing at application for best results. Reduced control may result if weeds are drought stressed. Weeds will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds.

9.5 MINIMUM AND ZERO TILLAGE CROPPING SYSTEMS (ALL FIELD CROPS, INCLUDING CEREALS, OILSEEDS, PULSES, FORAGES, CORN AND POTATOES)

This product may be applied prior to seeding or after seeding, but before crop emergence for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Applications made too far in advance of seeding may allow weeds to emerge between application and crop emergence, as this product does not provide residual weed control.

Minimum and Zero Tillage Tank Mixtures

9.5.1 Smoke 540 plus 2,4-D amine or ester can be applied prior to seeding or after seeding, but before crop emergence in **wheat, winter wheat, barley and rye**. Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.5.2 Smoke 540 plus bromoxynil (Pardner) can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley and oats. Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.5.3 Smoke 540 plus Pursuit Herbicide can be applied prior to, or after seeding, but before crop emergence in soybeans. Smoke 540 will control emerged weeds listed on this label when applied as directed (refer to “**Annual and Perennial Weed Control**” section 7.0 and 8.0). Pursuit Herbicide will control weeds germinating from seed. Add the recommended rates of both products in 100 litres of water per hectare, following the instructions on the Pursuit herbicide label.

ALWAYS REFER TO THE PURSUIT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS. ONLY SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT HERBICIDE APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 120 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE.

Pursuit is a registered trademark of BASF Agrochemical Products B.V. Netherlands.

9.5.4 Smoke 540 plus MCPA can be applied prior to seeding in wheat, barley, rye, oats, corn (field and sweet; MCPA amine only), flax and field peas (MCPA amine only). Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.5.5 Smoke 540 plus Buctril M® can be applied prior to seeding in **wheat, rye, corn, barley, oats, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow brome grass, seedling streambank wheatgrass and reed canary grass)**.

Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.5.6 Smoke 540 plus MCPA amine can be applied prior to seeding in **lentil and chickpea**. Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.5.7 Smoke 540 plus Express Toss-N-Go Herbicide Or Express Toss-N-Go® Dry Flowable 75% Herbicide in pre-seed situations, **wheat and barley** may be seeded after a minimum of 24 hours after application. Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

ALWAYS REFER TO THE EXPRESS® TOSS-N-GO HERBICIDE OR EXPRESS TOSS-N-GO DRY FLOWABLE 75% HERBICIDE LABEL FOR FURTHER INFORMATION ON APPLICATION DIRECTIONS, TANK MIXING, AND USE PRECAUTIONS.

9.5.8 Smoke 540 plus Banvel II Herbicide can be applied prior to seeding in **wheat, barley, rye, oats and field corn only (do not apply prior to seeding sweet corn)**. Refer to “**Annual Weed Control with Smoke 540 Tank Mixtures**” table for information (section 7.2).

9.6 FORAGES LEGUMES AND GRASSES

This product may be applied for control of emerged weeds prior to emergence of forage legumes and grasses. If the forages are to be under-seeded with a cover crop, this product must be applied prior to planting the cover crop.

9.7 PASTURE RENOVATION

Use this product to control or suppress existing vegetation for zero-tillage seeding of legumes into established sod for pasture renovation. Delay spraying until weed growth is at least 20 centimetres in height and a maximum number of seedlings or shoots have emerged. Application can be made immediately before, during or after seeding, but before crop emergence.

9.8 FORAGE SEED PRODUCTION

For spot treatment control of perennial weed problems such as quackgrass and Canada thistle in seed fields, apply as directed to vegetation that is at least 20 to 25 centimetres in height but before emergence of seed head. The crop in the treated areas will be killed. Take care to avoid drift outside target areas for the same reason.

9.9 PREHARVEST TREATMENT

CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX AND DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle, Smoke 540 can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed) (including Roundup Ready® varieties), flax (including low linolenic acid varieties), lentils, peas, dry beans, soybeans (including Roundup Ready® varieties) and forages. DO NOT apply to crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations. EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE. Preharvest treatment to Roundup Ready® varieties of canola and soybean provides weed control only.

Smoke 540 should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For forage crops, apply this product at 1.67 to 3.33 litres per hectare 3 to 7 days prior to the last cut before rotation or forage renovation.

Consult the table “**Guidelines for Timing of Preharvest Applications**” (section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results, quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 to 14 days (or 3 to 7 days for forage applications) before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g., sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife, should be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

DO NOT APPLY BY AIR.

9.9.1 GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA (including Roundup Ready® varieties)	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (including low linolenic acid varieties)	Less than 30	Majority (75% - 80%) of bolls are brown.
PEAS	Less than 30	Majority (75% - 80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80% - 90% leaf drop (original leaves).
SOYBEANS (including Roundup Ready varieties)	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80% - 90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS: (PREHARVEST TREATMENT OF CHICKPEA, DRIED LUPIN AND DRIED FAVA BEAN).

The DIRECTIONS FOR USE for this product described below were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE

Preharvest Treatment of Chickpea, Dried Lupin and Dried Fava Bean

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle and harvest management, Smoke 540 can be applied prior to harvest of chickpea, dried lupin and dried fava bean. DO NOT apply to crops if grown for seed production.

Smoke 540 should be applied preharvest at 1.67 litres per hectare in 50 to 100 litres per hectare of clean water, by ground application only. Apply only when the crop has 30 percent or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For further information see guidelines above. The Pre-harvest interval is 7 days.

GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
Chickpea	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves)
Dried Lupin		
Dried Fava Bean		

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS

9.9.2 PREHARVEST AERIAL APPLICATION

Refer to the general guidelines for aerial application in Sections 5.2 and 5.3 as well as specific instructions in this section.

**RESTRICTED USE
AERIAL PREHARVEST APPLICATION
PRAIRIE PROVINCES ONLY
(including PEACE RIVER REGION OF B.C.)**

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators and aerial application services approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patternation) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400 – 600 microns) or very coarse (600 – 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.

3. Applicators using this product must have successfully completed a ROUNDUP herbicide aerial application training course provided by Monsanto Canada Inc.
4. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the *direct daily supervision* of a qualified pilot.

Refer to general directions and precautions concerning aerial application, section 5.2, and 5.3, buffer zones.

DIRECTIONS FOR USE

Smoke 540 may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. Smoke 540 can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, dry beans and soybeans. **Do not use on forages. DO NOT apply to any crops if grown for seed production.**

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

Smoke 540 should be applied at 1.67 L/ha in 20 – 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table “**Guidelines for Timing of Preharvest Applications**” (Section 9.9.1) for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 – 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

9.10 TREE PLANTINGS

SHELTERBELTS AND NURSERY STOCK (WOODY ORNAMENTALS)

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established nurseries or shelterbelts of the following species:

DECIDUOUS

Ash

Fraxinus spp.

Caragana

Caragana spp.

Cherry

Prunus spp.

Elm

Ulmus spp.

Lilac

Syringa spp.

Maple

Acer spp.

Mountain Ash

Sorbus spp.

Poplar

Populus spp.

Russian Olive

Elaeagnus spp.

Willow

Salix spp.

CONIFEROUS

Fir

Abies spp.

Juniper

Juniperus spp.

Pine

Pinus spp.

Spruce

Picea spp.

Yew

Taxus spp.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

9.11 TREE, VINE, BERRY AND OTHER CROPS

This product is recommended for annual and perennial weed control in established vineyards or orchards, in blueberry, cranberry and strawberry, or for site preparation prior to transplanting tree and vine crops. Applications may be made with boom equipment, shielded sprayers, hand held and high volume orchard guns, or with wiper applicator equipment (orchards, vineyards, cranberry and strawberry only). See “**Mixing and Application Equipment Information**” (section 5.2) and the following table for specific information on the use of equipment.

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual or preemergent weed control. For subsequent weed control, follow a program using residual herbicides or use repeated applications of this product. Do not apply more than 23 litres of this product per hectare per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF

HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES, OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

WEED CONTROL IN TREE, VINE, BERRY AND OTHER CROPS

CROP	RATE (L/ha)	PRE-HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Apples, Apricot, Cherry (sweet/sour), Peaches, Pears, Plums	1.5 - 8	30	3	Annual and perennial weeds	
Apples, Grapes	Tank Mix 1.5 – 8 + Simazine 2.0 – 4.5 kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long preemergent control. Do not apply to coarse, sandy or gravelly soil. When applied as a tank-mix combination, read and observe all label directions, including rates, personal protective equipment, restrictions and precautions for each product used in the tank-mix. Always use in accordance with the most restrictive label restrictions and precautions.

CROP	RATE (L/ha)	PRE- HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
					DO NOT apply to orchards or vineyards that have been established less than 1 or 3 years, respectively. Simazine rate is equivalent to 2.25 – 5.0 kg/ha Princep® Nine-T®, or 4.0 – 9.0 kg/ha Simadex®
Grapes	1.5 - 8	14	3	Annual and perennial weeds.	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. Do not apply to vines which have been established less than 3 years.
Highbush (cultivated) blueberry	1.87 – 3.73	30	1	Quackgrass	Use as a directed spray, with no more than 275 kPa pressure.
Lowbush blueberry	0.67 – 1.34% solution (spot application)	Apply in non-bearing year only	1	Woody brush (section 6.3)	Apply as a directed spray in mid-summer of the vegetative (non-bearing) year. See section 9.3 for instructions on spot treatments.
Filberts, Hazelnut (established plantations)	1.5 – 2.33	14	-	Annual Weeds	Use as a directed spray, with no more than 275 kPa pressure.

CROP	RATE (L/ha)	PRE- HARVEST INTERVAL (days)	MAX. APPL. PER YEAR	WEEDS CONTROLLED	COMMENTS (Refer to sections 7.1 and 8.1 for specific rates for weed control)
Walnut, Chestnut, Japanese Heartnut	1.5 - 8	-	2	Annual and perennial weeds	Apply late spring and fall, postharvest but prior to a killing frost. Apply in 200 – 300 L water as a directed spray, using no more than 275 kPa pressure. Apply alternatively as a 1.34% wiper solution (see “ Wiper Applications ” section 9.12).
Cranberry	13.4% solution (0.62 L Smoke 540 + 4L water)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators (section 9.12).
Strawberry	0.67 – 1.34% solution (spot application) 22% solution (wiper application)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage (see sections 8.1 and 8.2). See section 9.3 for instructions on spot treatments. See section 9.12 for instructions on wiper applications.
Asparagus	0.83 – 1.67	7	1	Fall seeded ryegrass	Apply in spring before emergence of crop shoots.

Princep and Nine-T are registered trademarks of Syngenta Group Company.
Simadex is a registered trademark of Aventis CropScience UK Limited.

SHORT ROTATION INTENSIVE CULTURE (SRIC) POPLAR

(*Populus spp*) DO NOT APPLY BY AIR.

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established crops of short rotation intensive culture (SRIC) Poplar species (*Populus spp.*)

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, OR OTHER PARTS OF TREES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

Smoke 540 may be applied prior to planting or as a post directed spray in established short rotation intensive culture crops. Apply Smoke 540 up to 8 L/ha in 50 – 100 liters or 150 – 300 L/h for quackgrass control by ground application only. Applications can be made 1-3 times per year during establishment however, not to exceed the limit of 8 L/ha per year. Shielded sprayers must be utilized when applying post directed spray solutions. Allow a 6-8 week interval between spray applications. Apply to actively growing weeds.'

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR SPECIAL USE APPLICATIONS: (NORTH AMERICAN GINSENG).

The DIRECTIONS FOR USE for this product described on the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS.

NORTHLAMERICAN GINSENG

New Gardens (British Columbia only): Apply this product in the fall after seeding but before freeze-up in new gardens only to control volunteer cereals. Apply when weeds are at the growth stages listed on the product label. Use a single application of 1.67 litres per hectare in 50 to 100 litres water per hectare. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

Existing/Established Gardens: Apply this product in the spring before the crop has emerged above the soil. Apply when weeds are at the growth stages described in the product label. A maximum of two 1.67 litres per hectare applications in 50 to 100 litres water per hectare may be made in a season. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

9.12 SELECTIVE EQUIPMENT

WIPER APPLICATORS

This product may be applied with a wiper applicator, after dilution and thorough mixing with water, to listed weeds in soy and dry beans, grapes, orchards, cranberries, lowbush blueberries and strawberries. Applications must be made before initial pod set in soy and dry beans. (It may also be used in any industrial, tree planting and non-crop site specified on this label. See sections 9.10 and 10.1).

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution. Wiper applicators include either roller or wick devices which physically wipe appropriate concentrations or amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Performance may be improved by reducing speed in areas of heavy weed infestations to insure adequate wiper saturation. Best results may be obtained if 2 applications are made in opposite directions.

AVOID CONTACT WITH DESIRABLE VEGETATION. Contact of the herbicide solution with desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that wiper contact point is at least 5 centimetres above the desirable vegetation. Droplets or foam of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications should be made when the weeds are a minimum of 15 centimetres above the desirable vegetation. Best results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. See the “**Weed Control**” tables (sections 7.1 and 8.1) for recommended stage of growth for specific weeds.

NOTES

- **Maintain equipment in good operating condition. Avoid leakage or dripping onto desirable vegetation.**
- **Adjust height of applicator to insure proper contact with weeds.**
- **Keep wiping surfaces clean.**
- **Maintain recommended roller RPM on roller applicators while in use.**

- **Keep wiper material at proper degree of saturation with herbicide solution.**
- **DO NOT use wiper equipment when weeds are wet.**
- **DO NOT operate equipment at ground speeds below 4 and greater than 10 kilometres per hour. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to insure good coverage of weeds.**
- **Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.**
- **Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended herbicide solution directly to the weed.**
- **Care must be taken with all types of wipers to insure that the absorbent material does not become over-saturated, causing the herbicide to drip onto desirable vegetation.**
- **With all equipment, drain and clean wiper parts immediately after using this product, by thoroughly flushing with water.**

For Roller Applicators – Mix 0.33 to 0.67 litres of this product in 10 litres water to prepare a 3 to 7 percent solution. Roller speed should be maintained at 50 to 150 RPM.

For Wick or other Wiper Applicators – Mix 0.57 litres of this product in 2 litres of water to prepare a 22 percent solution.

10.0 NON-CROPLAND USES

INDUSTRIAL, RIGHTS-OF-WAY, RECREATIONAL, AND PUBLIC AREAS.

ALWAYS READ PRECAUTIONS, GENERAL INFORMATION AND MIXING AND APPLICATION SECTIONS (3.0, 4.0 AND 5.0) PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

DO NOT APPLY BY AIR.

This product can be used to control annual and perennial weeds and woody brush and trees listed on this label in non-crop areas such as railroad, pipeline, highway, power and telephone rights-of-way, petroleum tank farms and pumping installations; roadsides; storage areas; lumberyards; fence rows; industrial plant sites; parking areas; school yards, parks, golf courses, other public areas; airports and similar industrial or non-crop areas.

NOTE: For all industrial, rights-of-way, recreational and public areas, repeat treatments may be necessary to control regeneration or new growth.

When applied as recommended under the conditions described, this product will control weeds in non-cropland areas as listed in the following table.

10.1 WEED CONTROL IN NON-CROPLAND AREAS WITH SMOKE 540

WEEDS	GROUND APPLICATION*			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
Annual grasses and broadleaves	1.5–2.33	50-100	0.67	Actively growing weeds.
Perennial Weeds				Actively growing weeds.
Quackgrass	1.67 3.17-4.67	50-300 50-300	0.67 1.34	Add 0.5% v/v of a recommended surfactant when using water volumes greater than 150 L (see section 8.2.2).
Canada Thistle (bud stage)	3.17-4.67	100-300	1.34	
Purple Loosestrife	4	300-600	0.67-1.34 (or 22% for wiper application)	
Other Perennials	4.67-8	100-300	1.34	Higher rate for long term control and for heavy infestations. See section 10.2.2 for instructions on purple loosestrife applications. Summer through fall is optimum.
Brush and Trees				
Birch, Cherry, Poplar, Western Snowberry, Willow	2-4	100-300	0.67-1.34	Summer through early fall (see section 10.2).
Maple, Raspberry/ Salmonberry, Alder	4	100-300	1.34	Late summer through fall. Fall is optimum.

WEEDS	GROUND APPLICATION*			COMMENTS
	BOOM APPLICATION		HAND HELD HIGH VOLUME APPLICATION % SOLUTION	
	RATE* (L/ha)	WATER VOL.* (L/ha)		
Turf Renovation Annual and perennial weeds	1.67-8	100-300	0.67-1.34	Use higher end of the rate range for perennials.
Roadside Vegetation (1-2m wide along shoulders) Annual weeds (refer to tank mix sections on product labels for specific weeds controlled)	1) 0.5 – 0.67 + 1.25 – 2.5 L Vanquish or 2) 0.5 – 0.67 + 0.30 L Vanquish + 1.2 L 2,4-D amine 500	25-150	-	Refer to “ Annual Weed Control ” table (section 7.1) for appropriate product rate for specific weeds. For 2,4-D amine formulations with a different guarantee, adjust the rate accordingly. No application to standing water.
Residual Control Annual and perennial weeds (the simazine component of this tank mixture will provide season long control of most germinating broadleaf weeds and grasses. It may also provide postemergent activity on certain annual weeds).	1.67 – 8 + 4.0 -9.0 L Simadex Simazine Flowable	200-400	-	Do not apply to coarse, sandy or gravelly soil. One application per year. Use according to the most restrictive label directions for each product in the mixture. For other simazine formulations registered for industrial/ non-cropland areas, use equivalent rates; i.e., 2.0 – 4.5 kg simazine/ha.

* For more information on rates, water volumes and application, refer to “**Annual and Perennial Weed Control**” (sections 7.1 and 8.1, respectively).

Vanquish is a registered trademark of Syngenta Group Company.
Simadex is a registered trademark of Bayer.

10.2 APPLICATION INFORMATION FOR NON-CROPLAND USES

FOLIAR APPLICATIONS

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30 to 45 days for symptoms to develop on target species. Late season application may be made to species that have some autumn colors provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURF GRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

This product does not provide residual weed control. For subsequent weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

10.2.1 GROUND APPLICATIONS:

For all non-cropland uses

For woody brush and trees, apply 2 to 4 litres of this product per hectare. Use ground boom or boomless, or mist blower equipment, or apply as a 0.67 to 1.34 percent solution using hand held, high volume equipment. Apply as directed in the recommended volume of clean water to foliage of actively growing vegetation. Use the 4 litres per hectare rate for Maple, Alder and Willow* species, as well as for hard to control perennial weed species. (*suppression only).

Spray coverage should be uniform and complete. Do not spray to the point of run-off. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages.

10.2.2 PURPLE LOOSESTRIFE CONTROL

- **DO NOT TREAT PLANTS OVER OPEN WATER.** Smoke 540 is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using hand held equipment, spray-to-wet.
- For wiper applications see section 9.12.

- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

10.3 SELECTIVE APPLICATION FOR ALL NON-CROPLAND USES

Selective equipment such as WIPER and ROLLER applicators can be used to control emerged weeds in non-crop areas and tree plantings. See “**Selective Equipment**” (section 9.12) for more information.

10.4 TURF GRASS

When applied as directed, under conditions described, this product controls most existing vegetation. Apply this product at rates specified in “**Weed Control in Non-Cropland Areas**” (section 10.1).

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth given in “**Weed Control**” (sections 7.1 and 8.1, respectively). Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray and proper translocation into underground plant parts. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

For maximum control of existing vegetation, delay establishment to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. Desirable turfgrass may be established following the above procedures.

10.5 INJECTION APPLICATIONS -- FOR ALL NON-CROPLAND USES

Woody vegetation may be controlled by injection application of this product. Apply using suitable equipment, which must penetrate into living tissue, at a rate of at least 0.33 millilitres (either undiluted or 1:1 with water) per 5 centimetres tree diameter at breast height (DBH). The cuts should be spaced evenly around the tree and below all major branches. Application may be made at any time of year, except when cold temperatures prevent adequate penetration of injection equipment, or in the spring during periods of

heavy sap flow. Control of tree species with tree diameters greater than 20 centimetres may not be acceptable at this rate.

Total control may not be evident for 1 to 2 years following treatment. A partial list of species controlled includes:

Alder

Alnus spp.

Birch

Betula spp.

Cedar

Thuja spp.

Cherry

Prunus spp.

Douglas Fir

Pseudotsuga spp.

Hemlock

Tsuga spp.

Maple*

Acer spp.

Pine

Pinus spp.

Poplar

Populus spp.

Willow

Salix spp.

* This treatment may only provide suppression of Bigleaf Maple. Late fall applications will provide optimum suppression of Bigleaf Maple.

10.6 CUT STUMP APPLICATION

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Because the treatment uses a concentrated solution, application must be made using low-pressure equipment e.g., squirt bottle or similar device. This product must be applied immediately to the surface of the freshly cut stump i.e., within 5 minutes for optimum control at the prescribed rates. Only the cambial tissues of the cut surface should be treated. Apply the herbicide solution at a rate equivalent to at least 0.33 milliliters product for every 5 centimeters DBH. Do not cover the remaining area nor any exposed roots, as this product does not penetrate bark well. This treatment may be used at any time of year, except during periods of heavy sap flow or when low temperatures prevent solution application due to freezing. A water soluble colourant may be added to the solution as a means of indicating which surfaces have been treated. Total control may not be evident until 1 to 2 years after treatment.

See “**Injection Applications**” (section 10.5) of this label for a partial list of species controlled.

(Container)

GROUP	2	4	HERBICIDES
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STEEL Herbicide

Emulsifiable Concentrate

For the control of annual broadleaved weeds in spring wheat, durum wheat, spring barley and oats

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA ONLY

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENTS:

florasulam 2.5 g/L
fluroxypyr 100 g/L
(present as 1-methylheptyl ester)

Contains 1,2-benzisothiazolin-3-one at 0.00965% as a preservative

Or

Contains 2-methyl-4-isothiazolin-3-one at 0.000185% and 5-chloro-2-methyl-4-isothiazolin-3-one at 0.000565% as preservatives

Warning, contains the allergen soy

REGISTRATION NUMBER 33936

PEST CONTROL PRODUCTS ACT

**WARNING EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: 1 L -Bulk

SHARDA Cropchem Limited
2nd Floor, Prime Business Park
Dashrathlal Joshi Road
Vile Parle (West)
Mumbai - 400056, India

Canadian Agent:
SHARDA Cropchem Limited
63 Kingsview Blvd
Etobicoke, Ontario, CA
M9R1V1
1-844-810-5720
1-416-840-5639

PRECAUTIONS
KEEP OUT OF REACH OF CHILDREN

Harmful if swallowed. Causes eye and skin irritation. Do not get in eyes, on skin or on clothing. Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, protective eyewear (goggles or face shield), socks and shoes during mixing, loading, application, clean-up and repair. Wash contaminated clothing before reuse. Destroy contaminated shoes and leather articles.

Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Do not use or store near heat or open flame.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on the judgment of the physician in response to reactions of the patient. **DO NOT INDUCE VOMITING.** Vomiting may cause aspiration pneumonia. If burn is present, treat as any thermal burn after decontamination. If swallowed, aspiration may cause chemical pneumonia. When considering emptying the stomach, the danger of chemical pneumonia must be weighed against toxicity. If lavage is performed, a cuffed endotracheal tube should be considered

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS

Toxic to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

Overspray or drift to sensitive habitats should be avoided.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

STORAGE

Store in original containers in a secure, dry heated storage. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. To prevent contamination, store this product away from food or feed. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

(Booklet)

GROUP	2	4	HERBICIDES
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STEEL Herbicide

Emulsifiable Concentrate

For the control of annual broadleaved weeds in spring wheat, durum wheat, spring barley and oats

FOR SALE FOR USE IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA ONLY

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENTS:
florasulam 2.5 g/L
fluroxypyr 100 g/L
(present as 1-methylheptyl ester)

Contains 1,2-benzisothiazolin-3-one at 0.00965 % as a preservative
or
2-methyl-4-isothiazolin-3-one at 0.000185% and 5-chloro-2-methyl-4-isothiazolin-3-one at 0.000565% as
preservatives.

Warning, contains the allergen soy

REGISTRATION NUMBER 33936 PEST CONTROL PRODUCTS ACT

**WARNING EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

NET CONTENTS: 1 L -Bulk

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PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

Harmful if swallowed. Causes eye and skin irritation. Do not get in eyes, on skin or on clothing. Wear coveralls over a long-sleeved shirt, long pants, chemical-resistant gloves, protective eyewear (goggles or face shield), socks and shoes during mixing, loading, application, clean-up and repair. Wash contaminated clothing before reuse. Destroy contaminated shoes and leather articles.

Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

PHYSICAL OR CHEMICAL HAZARDS

COMBUSTIBLE. Do not use or store near heat or open flame.

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TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on the judgment of the physician in response to reactions of the patient. **DO NOT INDUCE VOMITING.** Vomiting may cause aspiration pneumonia. If burn is present, treat as any thermal burn after decontamination. If swallowed, aspiration may cause chemical pneumonia. When considering emptying the stomach, the danger of chemical pneumonia must be weighed against toxicity. If lavage is performed, a cuffed endotracheal tube should be considered

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS

Toxic to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

Overspray or drift to sensitive habitats should be avoided.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

STORAGE

Store in original containers in a secure, dry heated storage. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. To prevent contamination, store this product away from food or feed. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

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Returnable Containers:

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For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Steel Herbicide is a selective postemergence herbicide for the control of hard-to-kill annual broadleaved weeds in spring wheat (including durum), spring barley and oats. Steel Herbicide is mixed with water and applied as a uniform broadcast spray.

Steel Herbicide **MUST** be applied early postemergence, to the main flush of actively growing broadleaved weeds. Warm, moist growing conditions promote active weed growth and enhance the activity of Steel Herbicide by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds. See "DIRECTIONS FOR USE" section of this label for complete use details.

Steel Herbicide stops growth of susceptible weeds rapidly. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent on weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

MODE OF ACTION

Steel Herbicide contains a Group 2 and a 4 mode of action herbicide. The Group 2 mode of action herbicide inhibits the production of the ALS enzyme in plants. This enzyme is essential for the production of certain amino acids required for plant growth. The Group 4 mode of action herbicide disrupts normal plant growth regulation resulting in death of susceptible plants.

GENERAL USE PRECAUTIONS

Sensitive Plants

Do not apply Steel Herbicide directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

Non-Target Sites

Do not apply where proximity of susceptible crops or other desirable plants is likely to result in exposure to spray or spray drift.

Crop Rotation

Fields previously treated with Steel Herbicide can be seeded the following year to barley, canola, corn, dry common beans (*Phaseolus vulgaris*), flax, lentils, mustard (brown, oriental and/or yellow) oats, peas, potatoes (except seed potatoes), soybeans, sunflower or wheat or fields can be summerfallowed.

Do not use in successive years at the same site.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Sharda Cropchem Limited.

Spray Equipment Precaution

Do not apply through any type of irrigation system.

To Reduce Spray Drift:

1. Use nozzles delivering higher volumes and coarser droplets.
2. Use low pressures (200 to 275 kPa).
3. Use 100 L/ha of spray solution.
4. Spray when the wind velocity is 15 km/hr or less.
5. Spot treatments should only be applied with a calibrated boom to prevent over-application.

Sprayer clean-out

To avoid injury to desirable plants, thoroughly clean equipment used to apply this product before re-use or using it to apply other chemicals.

1. Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. First rinse:
 - Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
 - Agitate and circulate for 15 minutes, and flush through booms and hoses.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.
3. Second rinse:
 - Fill the tank with clean water.
 - Add All Clear Spray Tank Decontaminator, or Clean-Out Spray Tank Cleaner, or 1 L of household ammonia (containing a minimum of 3 % ammonia) per 100 L of water, or similar tank cleaning agent as per manufacturer's recommendations while filling the tank with clean water.
 - Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation. Flush the

solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.

- If possible, let the solution stand in the sprayer tank and booms for an extended period of time, overnight if possible.
- After flushing the boom and hoses, drain tank completely.
- Remove nozzles and screens and clean separately with a cleaning agent or an ammonia solution (100 mL in 10 L water).

4. Third rinse:

- Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
- Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
- Drain tank completely.

Do not use ammonia with chlorine bleach. Using ammonia with chlorine bleach will release a gas with a musty chlorine odour which may cause eye, nose, throat, and lung irritation. Do not clean equipment in an enclosed area.

DIRECTIONS FOR USE

READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. DO NOT APPLY TO CROPS UNDERSEEDING WITH LEGUMES.

Do not enter or allow worker re-entry into treated areas until 12 hours after application.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

DO NOT apply using aerial application equipment.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

Crops

Spring wheat, durum wheat, spring barley and oats.

Application Rate

For control of a wide spectrum of broadleaved weeds, apply a uniform spray containing 1.0 L/ha of Steel Herbicide in a minimum of 100 L of water per hectare to thoroughly cover the weeds. Apply to actively growing wheat, barley, and oats from the 2 leaf expanded to 6 leaf stage. Apply when weeds are actively growing. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds.

Mixing Instructions

1. Fill sprayer tank 1/2 full of water
2. Start sprayer tank agitation
3. Add the required amount of Steel Herbicide
4. Complete filling the sprayer tank with sufficient water to spray 100 L of spray mixture per hectare

5. Follow sprayer directions and precautions as outlined above, especially when applying next to sensitive crops (e.g. canola and legumes)
6. Follow sprayer clean-up directions

Note: Do not add a surfactant to this product unless instructed to do so (see tank mix combinations – Table 3).

Table 1: Weeds Controlled by Steel Herbicide at 1.0 L/ha

cleavers	volunteer flax
common chickweed	wild buckwheat
kochia*	

* including ALS resistant biotypes

Pre-Harvest/Grazing Intervals

1. Do not cut the treated crop for hay or graze treated crop within 7 days after application.
2. Do not harvest the treated crop within 60 days after application.

TANK-MIX COMBINATIONS WITH STEEL HERBICIDE

Crops Registered

Spring wheat, durum wheat and spring barley (see Table 3 for exclusions)

Tank mixtures of Steel Herbicide with other herbicides will provide control of additional broadleaved weeds and specified annual grasses. Apply when crops and weeds are actively growing. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds. Follow all precautions, minimum interval to harvest and directions for use on the Steel Herbicide and tank-mix partner labels.

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the required amount of Steel Herbicide and continue to agitate.
4. Add the required amount of tank-mix partner.
5. Fill the sprayer tank with sufficient water to spray 100 L of spray mixture per hectare.

Note: Add only the adjuvant recommended below. Follow tank-mix partner label for order of mixing.

Table 2: Steel Herbicide Tank Mix Combinations for Broadleaf Weed Control

Herbicide Tank Mix Partner	Crops Registered	Rate (Product/ha)	Additional Weeds Controlled or Suppressed (S) Include
MCPA Ester†	spring wheat, durum wheat & spring barley	580-700 mL/ha MCPA 600 (350-420 g ae/ha)	flixweed, hempnettle, lamb's-quarters, ragweed, redroot pigweed, shepherd's-purse, smartweed, stork's-bill (S), sunflower (annual), volunteer canola, wild mustard

† Use higher rates for weeds in the bud stage, dry or cold weather or heavy infestations

Table 3: Steel Herbicide Broadleaf Tank Mix Combinations plus Other Herbicides for Annual Grass Control

Herbicide Tank Mix Partner	Crops Registered	Rate Product/ha	Adjuvant and Rate	Additional Weeds Controlled or Suppressed(S)
Assert 300 SC Herbicide	spring wheat, durum wheat & spring barley	1.6 L	Refer to the Assert 300 SC Herbicide label	wild oats
Axial 100 EC Herbicide [♦]	spring wheat & spring barley	600 mL/ha	Adigor 700 mL/ha	wild oats, green foxtail, yellow foxtail, barnyard grass
Everest 2.0 Herbicide ^{♦♦††}	spring wheat & durum wheat	36 – 72 mL/ha	Non-ionic surfactant (see label) 0.25% v/v	wild oats & green foxtail

†† For conditions for when to use the higher rates, refer to the Everest 2.0 Herbicide label.

♦ Do not apply Axial 100 EC Herbicide in tank mixes containing 2,4-D.

♦♦ Wheat (including durum) exposed to water-logged or saturated soils, or temperature extremes such as heat or freezing weather, or drought, low fertility or plant disease at application time could show unacceptable injury symptoms. Weed control may also be reduced by these same conditions.

Buffer Zones

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Buffer Zones (metres) Required for the Protection of:	
	Aquatic Habitat	Terrestrial Habitat
Field sprayer	15	30

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Steel Herbicide is a Group 2 and Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Steel Herbicide and other Group 2 and Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Steel Herbicide or other Group 2 herbicide within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision

fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, Sharda Cropchem Limited at 1-844-810-5720.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

All products listed are registered trademarks of their respective companies.



Stellar™ XL Herbicide

GROUP	2	4	HERBICIDES
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For postemergent control of annual broadleaf weeds in spring wheat, durum wheat, winter wheat, spring barley and oats

FOR SALE FOR USE IN THE PRAIRIE PROVINCES, PEACE RIVER REGION AND INTERIOR OF BRITISH COLUMBIA ONLY

AGRICULTURAL

READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT:	florasulam	2.5 g/L
	fluroxypyr (present as 1-methylheptyl ester)	100 g/L
	MCPA (present as 2-ethylhexyl ester)	350 g/L
Emulsifiable Concentrate		

REGISTRATION NUMBER 32099 PEST CONTROL PRODUCTS ACT

WARNING  **POISON**

**CAUTION EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER
HARMFUL IF SWALLOWED**

NET CONTENTS: 1 L - bulk

Dow AgroSciences Canada Inc.
2400, 215 – 2nd Street S.W.
Calgary, Alberta
T2P 1M4
1-800-667-3852

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN. May irritate eyes and skin. Avoid contact with eyes and skin. Potential skin sensitizer. Harmful or fatal if swallowed. Wear long-sleeved shirt and long pants, goggles or face shield and chemical resistant gloves during mixing, loading, application, clean-up and repair. Wash concentrate from skin or eyes IMMEDIATELY. After use, wash hands and other exposed skin. Avoid breathing spray mist.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12-hours.

DO not use in residential areas. Residential areas are defined as any use site where bystanders, including children, could be exposed during or after application. This includes homes, schools, parks, playgrounds, playing fields, public buildings, or any other area where the general public, including children, could be exposed.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

DO NOT APPLY USING AERIAL APPLICATION EQUIPMENT

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on the judgment of the physician in response to reactions of the patient. This product contains a **PETROLEUM DISTILLATE**. **DO NOT INDUCE VOMITING.** Vomiting may cause aspiration pneumonia. If burn is present, treat as any thermal burn after decontamination. If swallowed, aspiration may cause chemical pneumonia. When considering emptying the stomach, the danger of chemical pneumonia must be weighed against toxicity. If lavage is performed, a cuffed endotracheal tube should be considered

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL PRECAUTIONS

TOXIC to non-target terrestrial plants and aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms.

This product has the potential to leach. Do not apply excessive irrigation during and after application.

STORAGE

Store in original containers in a secure, dry heated storage. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. To prevent contamination, store this product away from food or feed. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

GENERAL INFORMATION

Stellar XL Herbicide is a selective postemergence herbicide for the control of hard-to-kill annual broadleaf weeds in spring wheat, durum wheat, winter wheat, spring barley and oats. Stellar XL Herbicide is mixed with water and applied as a uniform broadcast spray.

Stellar XL Herbicide **MUST** be applied early postemergence, to the main flush of actively growing broadleaf weeds. Warm, moist growing conditions promote active weed growth and enhance the activity of Stellar XL Herbicide by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and re-growth may occur. For best results, ensure thorough spray coverage of target weeds. See "DIRECTIONS FOR USE" section of this label for complete use details.

Stellar XL Herbicide stops growth of susceptible weeds rapidly. However, typical symptoms (discolouration) of dying weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent on weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

MODE OF ACTION

Stellar XL Herbicide contains a Group 2 and a 4 mode of action herbicide. The Group 2 mode of action herbicide inhibits the production of the ALS enzyme in plants. This enzyme is essential for the production of certain amino acids required for plant growth. The Group 4 mode of action herbicide disrupts normal plant growth regulation resulting in death of susceptible plants.

GENERAL USE PRECAUTIONS

Sensitive Plants

Stellar XL Herb E 32099 Feb20f SPECIMEN Page 3

Do not apply Stellar XL Herbicide directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco.

Non-Target Sites

Do not apply where proximity of susceptible crops or other desirable plants is likely to result in exposure to spray or spray drift. See Environmental Precautions section of the label.

Crop Rotation

Fields previously treated with Stellar XL Herbicide can be seeded the following year to alfalfa, barley, canola, corn, fababeans, field beans, flax, lentils, mustard, oats, peas, potato, soybean, sunflower or wheat or fields can be summerfallowed.

This product has potential to leach. Do not apply excessive irrigation.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or www.corteva.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

Spray Equipment Precaution

Do not apply through any type of irrigation system.

To Reduce Spray Drift:

1. Use nozzles delivering higher volumes and coarser droplets.
2. Use low pressures (200 to 275 kPa).
3. Use 100 L/ha of spray solution.
4. Spray when the wind velocity is 15 km/hr or less.
5. Spot treatments should only be applied with a calibrated boom to prevent over-application.

Sprayer Clean-Out Instructions

To avoid injury to desirable plants, thoroughly clean equipment used to apply this product before re-use or using it to apply other chemicals.

1. Immediately after spraying, completely drain the sprayer tank. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. First rinse:
 - Spray the inside of tank with clean water and fill the sprayer with at least one tenth of the spray tank volume.
 - Agitate and circulate for 15 minutes, and flush through booms and hoses.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.
3. Second rinse:
 - Fill the tank with clean water.
 - Add All Clear Spray Tank Decontaminator plus 1 L of household ammonia (containing a minimum of 3 % ammonia) per 100 L of water while filling the tank with clean water.
 - Agitate and then flush the boom and hoses with the cleaning solution. Top up with water making sure the tank is completely full. Allow to stand for 15 minutes with agitation. Flush the solution out of the spray tank through the spray booms. Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - If possible, let the solution stand in the sprayer tank and booms for an extended period of time, overnight if possible.

- After flushing the boom and hoses, drain tank completely.
 - Remove nozzles and screens and clean separately with a cleaning agent or an ammonia solution (100 mL in 10 L water).
4. Third rinse:
- Rinse the tank with clean water and flush through the boom and hoses using at least one tenth of the spray tank volume.
 - Remove end caps or open ball valves on the ends of each boom section, and flush solution through the boom ends to ensure there is no spray solution trapped between the boom end and the nozzles.
 - Drain tank completely.

DIRECTIONS FOR USE

READ THE ENTIRE LABEL BEFORE USE. FAILURE TO FOLLOW LABEL INSTRUCTIONS MAY RESULT IN ERRATIC WEED CONTROL OR CROP DAMAGE. DO NOT APPLY TO CROPS UNDERSEEDING WITH LEGUMES.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

DO NOT apply using aerial application equipment.

STELLAR XL HERBICIDE APPLIED ALONE

Crops Registered

spring wheat, durum wheat, winter wheat, spring barley and oats

Application Directions

For control of a wide spectrum of broadleaf weeds (see the following list of weeds controlled), apply Stellar XL Herbicide at 1.0 L/ha in a minimum of 100 L per hectare of water. Apply to spring wheat, durum wheat, winter wheat, spring barley and oats from the 2 leaf expanded to just prior to flag leaf emergence. Apply when weeds are actively growing (2-4 leaf stage). Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds.

Weeds Controlled or Suppressed by Stellar XL Herbicide at 1.0 L/ha

Weeds Controlled:

burdock	Russian pigweed
cleavers(1-8 whorl) ♦	shepherd's-purse
cocklebur	smartweed
common chickweed	stinkweed
flixweed	sunflower (annual)
hemp nettle	vetch
kochia♦	volunteer canola
lamb's-quarters	volunteer flax
plantain	wild buckwheat
prickly lettuce	wild mustard
ragweed	wild radish
redroot pigweed	

♦ including ALS resistant biotypes

Weeds Suppressed:

stork's-bill

Mixing Instructions

1. Fill sprayer tank 1/2 full of water
2. Start sprayer tank agitation
3. Add the required amount of Stellar XL Herbicide
4. Complete filling the sprayer tank with sufficient water to spray 100 L of spray mixture per hectare
5. Follow sprayer directions and precautions as outlined above, especially when applying next to sensitive crops (e.g. canola and legumes)
6. Follow sprayer clean-up directions

Note: Do not add a surfactant to this product.

Pre-Harvest/Grazing Intervals

1. Do not cut the treated crop for hay or graze treated crop within 7 days after application.
2. Do not harvest the treated crop within 60 days after application.

TANK-MIX COMBINATIONS WITH STELLAR XL HERBICIDE

Crops Registered

Spring wheat, winter wheat, durum wheat and spring barley (see table below for exclusions)

Application Directions

Tank mixtures of Stellar XL Herbicide with other herbicides will provide control of additional broadleaf weeds and specified annual grasses. Apply when crops and weeds are actively growing. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds. Follow the most stringent of all precautions, restrictions, minimum interval to harvest and directions for use on the Stellar XL Herbicide and tank-mix partner labels.

NOTE: STELLAR XL AT 0.8 L/HA IS TO BE USED ONLY WHEN TANK MIXED WITH SIMPLICITY GoDRI AND IS INTENDED FOR LOWER BROADLEAF WEED STAGES AND INFESTATIONS.

Stellar XL Herbicide at 0.8 L/ha for Annual Grass Control and Additional Broadleaf Weeds

Herbicide Tank Mix Partner	Crops Registered	Rate Product/ha	Additional Weeds Controlled
Simplicity™ GoDRI™ Herbicide	spring wheat, durum wheat, winter wheat	52 g/ha	Annual grass weeds: Japanese brome***, wild oats** Broadleaf weeds: kochia*††, lamb's-quarters, redroot pigweed, wild buckwheat, volunteer canola
		70 g/ha	Weeds above plus: Annual grass weeds: barnyard grass, Japanese brome, wild oats Broadleaf weeds: cleavers, common chickweed, corn spurry, cow cockle, flixweed, hemp nettle, round-leaved mallow, shepherd's purse, smartweed, stinkweed

♦ Including ALS resistant biotypes

**Only for control of low wild oats populations (<75 plants/m²).

***From the 1 to 4 leaf, 2 tiller stage under good growing conditions

† †Less than 100 plants/m². less than 15 cm in height

Stellar XL Herbicide at 1.0 L/ha plus Other Herbicides for Annual Grass Control and Additional Broadleaf Weeds

Herbicide Tank Mix Partner	Crops Registered	Rate Product/ha	Additional Weeds Controlled or Suppressed
Simplicity GoDRI Herbicide	spring wheat, durum wheat, winter wheat	52 g/ha	wild oats** Japanese brome***
		70 g/ha	Annual grass weeds: barnyard grass, green foxtail, Japanese brome, wild oats, yellow foxtail Broadleaf weeds: Canada thistle, dandelion, corn spurry, cow cockle, round-leaved mallow, Russian thistle, suppression of narrow-leaved hawk's-beard up to first flower, white cockle (season-long control: up to the first flower stage, less than 20 cm in height),
Assert 300 SC Herbicide	spring wheat, durum wheat & spring barley	1.6 L	Annual grass weeds: wild oats
Axial BIA Herbicide	spring wheat & spring barley	1.2 L	Annual grass weeds: barnyard grass, green foxtail, proso millet volunteer canary seed, volunteer oats, wild oats, yellow foxtail
Everest 2.0 Herbicide†	spring wheat & durum wheat	36-72 mL/ha	Annual grass weeds: green foxtail, volunteer tame oats, wild oats
Traxos Herbicide	spring wheat & durum wheat	1.2 L	Annual Grass Weeds: green foxtail, Persian darnel, proso millet, volunteer canary seed, volunteer oats, wild oats, yellow foxtail

‡Wheat (including durum) exposed to water-logged or saturated soils, or temperature extremes such as heat or freezing weather, or drought, low fertility or plant disease at application time could show unacceptable injury symptoms. Weed control may also be reduced by these same conditions.

**Only for control of low wild oats populations (<75 plants/m²).

***From the 1 to 4 leaf, 2 tiller stage under good growing conditions

Mixing Instructions

1. Fill sprayer tank 1/2 full of water.
2. Start sprayer tank agitation.
3. Add the WG herbicides first, then liquids, depending on the mixture followed by Stellar XL Herbicide and continue to agitate.
4. Add the required amount of tank-mix partner.
5. Fill the sprayer tank with sufficient water to spray 100 L of spray mixture per hectare.

Note: Add only the adjuvant recommended. Follow tank-mix partner label for order of mixing.

Improved Pastures containing only forage grasses

Stellar XL can be applied post emergence as a broadcast spray to control weeds in improved pastures that may eventually be rotated into annual cropland. Such pastures may contain non-native, tame or introduced forage grass species

Do not spray improved pastures if the injury to existing legume species cannot be tolerated. Stellar XL will injure or eliminate legume plants (e.g. alfalfa, clover species).

DIRECTIONS FOR USE

Apply when weeds are in the 2-4 leaf stage and actively growing. Best results are obtained from applications made to seedling weeds. Only weeds emerged at the time of treatment will be controlled. Extreme growing conditions such as drought or near freezing temperature prior to, at, and following time of application may reduce weed control. Pastures in poor condition or under stress (e.g., over-grazed, nutrient deficient, etc.) could lead to reduced weed control as a result of limited competition from the pasture grasses. Foliage that is wet at the time of application may decrease control.

Application rate: Stellar XL Herbicide at 1 L/ha

Weeds controlled: Refer to the weeds controlled above with Stellar XL Herbicide at 1 L/ha alone.

Restrictions:

1. Do not permit lactating dairy animals to graze fields within 7 days after application.
2. Do not harvest forage or cut hay within 7 days after application.
3. Withdraw meat animals from treated fields at least 3 days before slaughter.

Refer to the main Stellar XL Herbicide label for additional details and instructions before using.

READ THE ROTATIONAL CROPPING RESTRICTIONS ON THE FULL LABEL BEFORE USING THIS PRODUCT.

BUFFER ZONES

Spot treatments using hand-held equipment **DO NOT** require a buffer zone.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:				Terrestrial habitat
		Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depth:		
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Spring wheat, spring barley, oats, durum wheat, winter wheat	1	0	1	1	1

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides portion of the Canada.ca website.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management Stellar XL Herbicide is a Group 2 and Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to Stellar XL Herbicide and other Group 2 and Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Stellar XL Herbicide or other Group 2 and Group 4 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor treated weed populations after herbicide application for signs of resistance development. (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.corteva.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

TMTrademarks of Dow AgroSciences, DuPont or Pioneer and their affiliated companies or respective owners.

All other products listed are registered trademarks of their respective companies.

012720

Label Code: CN-32099-010-E

Replaces: CN-32099-009-E

Specimen Notes:

Label updates for Fluroxypyr re-evaluation

Material Safety Data Sheet

DOW AGROSCIENCES CANADA INC.

Product name: STELLAR™ XL Herbicide

Issue Date: 01/07/2016

Print Date: 01/12/2016

DOW AGROSCIENCES CANADA INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: STELLAR™ XL Herbicide

Recommended use of the chemical and restrictions on use

Identified uses: End use herbicide product

COMPANY IDENTIFICATION

DOW AGROSCIENCES CANADA INC.

2100 450 1ST STREET SW

CALGARY AB T2P 5H1

CANADA

For MSDS Updates and Product Information: 800-667-3852

Prepared by: Prepared for use in Canada by EH&S, Hazard Communications.

Revision Date: 01/07/2016

Print Date: 01/12/2016

Customer Information Number:

800-667-3852

solutions@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 613-996-6666

Local Emergency Contact: 613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Physical state Liquid.

Color Yellow

Odor Solvent

Hazard Summary**WARNING!!**

May cause allergic skin reaction.
 May cause eye irritation.
 May cause anesthetic effects.
 Isolate area.
 Keep upwind of spill.
 Toxic fumes may be released in fire situations.
 Highly toxic to fish and/or other aquatic organisms.

Potential Health Effects

Eyes: May cause moderate eye irritation.
 Corneal injury is unlikely.

Skin: Brief contact may cause slight skin irritation with local redness.
 Has demonstrated the potential for contact allergy in mice.
 Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: No adverse effects are anticipated from single exposure to mist.
 Based on the available data, respiratory irritation was not observed.

Ingestion: Low toxicity if swallowed.
 Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Chronic Exposure: For the active ingredient(s):

Has caused birth defects in laboratory animals only at doses toxic to the mother.

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

For similar active ingredient(s).

2-methyl-4-chlorophenoxyacetic acid (MCPA).

In animals, effects have been reported on the following organs:

Blood.

Kidney.

Liver.

Testes.

For the minor component(s):

In animals, effects have been reported on the following organs:

Eye.

Kidney.

Liver.

Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Mixture

This product is a mixture.

Component	CASRN	Weight percent
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MCPA 2-ethylhexyl ester	29450-45-1	51.9%
Fluroxypyr 1-methylheptyl ester	81406-37-3	13.7%
Florasulam	145701-23-1	0.24%
Balance	Not available	34.16%

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly. Suitable emergency safety shower facility should be available in work area.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function. Water fog, applied gently may be used as a blanket for fire extinguishment.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Sulfur oxides. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Water fog, applied gently may be used as a blanket for fire extinguishment. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Keep upwind of spill. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Avoid prolonged or repeated contact with skin. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Do not swallow.

Wash thoroughly after handling. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Fluroxypyr 1-methylheptyl ester	Dow IHG	TWA	10 mg/m ³

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Liquid.
Color	Yellow
Odor	Solvent
Odor Threshold	No data available
pH	4.06 <i>pH Electrode</i>
Melting point/range	Not applicable
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	> 100 °C
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	No data available
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	61.4 mPa.s at 20 °C 21 mPa.s at 40 °C
Kinematic Viscosity	No data available
Explosive properties	No
Oxidizing properties	No significant increase (>5C) in temperature.
Liquid Density	1.0546 g/ml at 20 °C <i>Digital density meter</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose.

Incompatible materials: Avoid contact with: Strong oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Hydrogen fluoride. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product:

LD50, Rat, female, > 2,000 - < 5,000 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, Rat, male and female, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Based on the available data, respiratory irritation was not observed.

As product:

LC50, Rat, male and female, 4 Hour, dust/mist, > 6.16 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation

May cause moderate eye irritation.

Corneal injury is unlikely.

Sensitization

Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

For similar active ingredient(s).

2-methyl-4-chlorophenoxyacetic acid (MCPA).

In animals, effects have been reported on the following organs:

Blood.

Kidney.

Liver.

Testes.

For the minor component(s):

In animals, effects have been reported on the following organs:

Eye.

Kidney.

Liver.

Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Carcinogenicity

For similar active ingredient(s). 2-methyl-4-chlorophenoxyacetic acid (MCPA). Fluroxypyr. Did not cause cancer in laboratory animals.

Teratogenicity

For the active ingredient(s): Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

For the minor component(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive toxicity

For the active ingredient(s): In animal studies, did not interfere with reproduction.

Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

MCPA 2-ethylhexyl ester

Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), static test, 96 Hour, > 0.50 mg/l

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), 48 Hour, 0.29 mg/l

Acute toxicity to algae/aquatic plants

EC50, Skeletonema costatum (marine diatom), 96 Hour, Growth inhibition (cell density reduction), 0.17 mg/l
EC50, Lemna minor (duckweed), 14 d, 0.13 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).
Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
oral LD50, Colinus virginianus (Bobwhite quail), 14 d, > 2,250 mg/kg > 2250mg/kg bodyweight.
dietary LC50, Colinus virginianus (Bobwhite quail), 5 d, > 5620mg/kg diet.

Fluroxypyr 1-methylheptyl ester

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).
LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, > 0.225 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, > 0.183 mg/l, OECD Test Guideline 202 or Equivalent
Toxicity to aquatic species occurs at concentrations above material's water solubility.

Acute toxicity to algae/aquatic plants

ErC50, diatom Navicula sp., static test, 72 Hour, 0.24 mg/l, OECD Test Guideline 201 or Equivalent
EbC50, alga Scenedesmus sp., 72 Hour, > 0.47 mg/l
ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 1.410 mg/l
ErC50, Myriophyllum spicatum, 14 d, 0.075 mg/l
NOEC, Myriophyllum spicatum, 14 d, 0.031 mg/l

Chronic toxicity to fish

NOEC, Rainbow trout (Oncorhynchus mykiss), 0.32 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).
oral LD50, Colinus virginianus (Bobwhite quail), 5 d, > 2000mg/kg bodyweight.
dietary LC50, Colinus virginianus (Bobwhite quail), > 5000mg/kg diet.
oral LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee
contact LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), > 1,000 mg/kg

Florasulam

Acute toxicity to fish

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).
LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 292 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, 0.00894 mg/l, OECD Test Guideline 201 or Equivalent
EC50, Myriophyllum spicatum, 14 d, Growth inhibition, > 0.305 mg/l

Chronic toxicity to fish

NOEC, Oncorhynchus mykiss (rainbow trout), flow-through test, 28 d, mortality, 119 mg/l
NOEC, Pimephales promelas (fathead minnow), flow-through test, 33 d, Other, > 2.9 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, growth, 38.90 mg/l
MATC (Maximum Acceptable Toxicant Level), Daphnia magna (Water flea), semi-static test, 21 d, growth, 50.2 mg/l

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).
Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).
oral LD50, Coturnix japonica (Japanese quail), 1047mg/kg bodyweight.
dietary LC50, Anas platyrhynchos (Mallard duck), 8 d, > 5,000 ppm
oral LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee
contact LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, > 1,320 mg/kg

Balance

Acute toxicity to fish
No relevant data found.

Persistence and degradability**MCPA 2-ethylhexyl ester**

Biodegradability: No relevant information found.

Stability in Water (1/2-life)

Hydrolysis, half-life, 76 d, pH 7, Half-life Temperature 25 °C, Measured
Hydrolysis, half-life, 117 d, pH 9, Half-life Temperature 25 °C, Measured

Fluroxypyr 1-methylheptyl ester

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

Biodegradation: 32 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 2.2 mg/mg

Stability in Water (1/2-life)

Hydrolysis, half-life, 454 d

Florasulam

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

Biodegradation: 2 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 0.85 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
	0.012 mg/mg

Stability in Water (1/2-life)

, > 30 d

Photodegradation

Atmospheric half-life: 1.82 Hour

Method: Estimated.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

MCPA 2-ethylhexyl ester

Bioaccumulation: Expected to be relatively immobile in soil (Koc > 5000). Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Partition coefficient: n-octanol/water(log Pow): 6.17 Estimated.

Bioconcentration factor (BCF): 11,250

Fluroxypyr 1-methylheptyl ester

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 5.04 Measured

Bioconcentration factor (BCF): 26 Oncorhynchus mykiss (rainbow trout) Measured

Florasulam

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -1.22

Bioconcentration factor (BCF): 0.8 Fish 28 d Measured

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

MCPA 2-ethylhexyl ester

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient(Koc): 10500 Estimated.

Fluroxypyr 1-methylheptyl ester

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient(Koc): 6200 - 43000

Florasulam

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 4 - 54

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. TRANSPORT INFORMATION

TDG

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(MCPA 2-ethylhexyl ester, Fluroxypyr 1-methylheptyl ester)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	MCPA 2-ethylhexyl ester, Fluroxypyr 1-methylheptyl ester

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(MCPA 2-ethylhexyl ester, Fluroxypyr 1-methylheptyl ester)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	MCPA 2-ethylhexyl ester, Fluroxypyr 1-methylheptyl ester
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(MCPA 2-ethylhexyl ester, Fluroxypyr 1-methylheptyl ester)
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UN number	UN 3082
Class	9
Packing group	III

Further information:

NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

National Fire Code of Canada

Not applicable

Canadian Domestic Substances List (DSL) (DSL)

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

Pest Control Products Act Registration Number: 32099

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	1	0

Revision

Identification Number: 101300247 / A215 / Issue Date: 01/07/2016 / Version: 1.0

DAS Code: GF-3193

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

Dow IHG	Dow Industrial Hygiene Guideline
TWA	Time Weighted Average (TWA):

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES CANADA INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

1. Product and Company Identification

Product Code:	Z-ACTION5%	
Product Name:	ACTION 5%	
Trade Name:	ACTION 5X	
Company Name:	Stoller Enterprises 284 Industrial Drive Regina, SK,	
Web site address:	http://stollerenterprises.ca/	
Emergency Contact:	CHEMTREC, In the US and Canada call	1 (800)424-9300
	CHEMTREC, From other countries call	+1 (703)527-3887
Information:	For agricultural use only	1 (800)539-5283
Intended Use:	For agricultural use only	

2. Hazards Identification

Serious Eye Damage/Eye Irritation, Category 2



GHS Signal Word:	Warning
GHS Hazard Phrases:	H319 - Causes serious eye irritation.
GHS Precaution Phrases:	P264 - Wash hands thoroughly after handling. P280 - Wear protective gloves/protective clothing/eye protection/face protection.
GHS Response Phrases:	P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+313 - If eye irritation persists, get medical advice/attention.
GHS Storage and Disposal Phrases:	No phrases apply.
OSHA Regulatory Status:	This material is classified as hazardous under OSHA regulations.
Potential Health Effects (Acute and Chronic):	Hazards not otherwise classified (HNOC) or not covered by GHS: None. Chronic exposures to skin and mucous membranes that cause irritation may cause a chronic dermatitis or mucosal membrane problem.
Inhalation:	Inhaling mist, spray, or vapor may cause irritation to upper respiratory tract (nose and throat). Nasal mucosal and oropharyngeal erythema.
Skin Contact:	Skin irritation. Skin exposure may cause slight irritation, redness, itching, swelling. May cause more severe response if skin is damp, abraded (scratched or cut), or covered by clothing, gloves or footwear. Prolonged contact may cause more severe symptoms. Damage is localized to contact areas.
Eye Contact:	Causes eye irritation. Eye exposure may cause serious eye irritation and pain. May cause conjunctival swelling and cornea opacification from hypertonic solution. Corneal eye pain, redness, acute corneal thickening or whitening.
Ingestion:	Consumption of hypertonic solutions causes nausea, vomiting, and increased thirst.
Medical Conditions Generally Aggravated By Exposure:	Any skin condition that disrupts the skin, such as abrasions, cuts, psoriasis, fungal infections, etc. Any eye condition that compromises tear production, conjunctiva, or normal corneal homeostasis.

3. Composition/Information on Ingredients

CAS #	Components (Chemical Name)	Concentration	
22691-02-7	Calcium chloride (CaCl ₂), hydrate	<30.0 %	

4. First Aid Measures

Emergency and First Aid Procedures:	Victims of severe exposure to chemicals must be taken to health providing centers for medical attention. Always bring with victim a copy of label and SDS of product to health professional.
In Case of Inhalation:	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
In Case of Skin Contact:	Wash with plenty of water. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash before re-use.
In Case of Eye Contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation occurs, get medical advice/attention.
In Case of Ingestion:	Give 2-3 glasses of water if victim is conscious and alert. Do not give anything by mouth to an unconscious person. Do NOT induce vomiting. Obtain medical attention immediately if ingested. Do not leave victim unattended. Wear impervious gloves while decontaminating skin and hair. Call a POISON CENTER or doctor/physician if you feel unwell.
Signs and Symptoms Of Exposure:	Solution and/or solids may be visible on the skin and/or eyes. Localized redness, warmth, and irritation consistent with mechanism of injury: abrasion, burn, hypertonic solution.
Note to Physician:	Treat symptomatically and supportively.

5. Fire Fighting Measures

Flash Pt:	N.A.
Explosive Limits:	LEL: N.A. UEL: N.A.
Autoignition Pt:	N.A.
Suitable Extinguishing Media:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media:	None known.
Fire Fighting Instructions:	Keep unnecessary people away; isolate hazard area and deny entry. Fight fire for other material that is burning. Water should be applied in large quantities as fine spray. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Wear protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.
Flammable Properties and Hazards:	This material does not burn.
Hazardous Combustion Products:	Formed under fire conditions: hydrogen chloride gas, calcium oxide

6. Accidental Release Measures

Protective Precautions, Protective Equipment and Emergency Procedures: Isolate the area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard on some surfaces. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures.

Environmental Precautions: Prevent entry into waterways, sewers, basements or confined areas. See Section 12, Ecological Information.

Steps To Be Taken In Case Material Is Released Or Spilled: Small and large spills: Contain spilled material if possible. Absorb with materials such as sand. Collect in suitable and properly labeled containers. Flush residue with water. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Precautions To Be Taken in Handling: Avoid contact with eyes, skin, and clothing. Do not swallow. Wash thoroughly after handling. Wear personal protective equipment as described in Section 8, Exposure Controls/Personal Protection.

Precautions To Be Taken in Storing: Protect from atmospheric moisture. Keep containers tightly closed when not in use. Keep separated from incompatible substances see Section 10, Stability and Reactivity.

8. Exposure Controls/Personal Protection

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
22691-02-7	Calcium chloride (CaCl ₂), hydrate	No data.	TLV: 10 mg/m ³	No data.

Respiratory Equipment (Specify Type): Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In dusty or misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: high efficiency particulate air (HEPA) N95. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Eye Protection: Wear safety glasses with side-shields. Wear chemical safety goggles and/or a face-shield to protect against skin and eye contact when appropriate.

Protective Gloves: Use gloves chemically resistant to this material. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Neoprene, Polyvinyl chloride ("PVC" or "vinyl"), Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other Protective Clothing: Wear clean, body-covering clothing. Wear appropriate clothing to avoid skin contact.

Engineering Controls (Ventilation etc.): Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Work/Hygienic/Maintenance Practices: Use good personal hygiene. Do not consume or store food in the work area. Wash hands and affected skin immediately after handling, before smoking or eating, before breaks, and at the end of the workday.

9. Physical and Chemical Properties

Physical States:	[] Gas [X] Liquid [] Solid
Appearance and Odor:	Clear to light yellow color. Very slight characteristic odor.
pH:	< 1
Freezing Point:	N.E.
Boiling Point:	> 240.00 F
Flash Pt:	N.A.
Evaporation Rate:	N.E.
Flammability (solid, gas):	Material will not burn.
Explosive Limits:	LEL: N.A. UEL: N.A.
Vapor Pressure (vs. Air or mm Hg):	N.E.
Vapor Density (vs. Air = 1):	N.E.
Specific Gravity (Water = 1):	1.26
Density:	~ 10.5 LB/GA
Solubility in Water:	Soluble
Saturated Vapor Concentration:	N.E.
Octanol/Water Partition Coefficient:	No data.
Percent Volatile:	N.A.
Autoignition Pt:	N.A.
Decomposition Temperature:	N.A.
Viscosity:	N.E.

10. Stability and Reactivity

Reactivity:	Hygroscopic.
Stability:	Unstable [] Stable [X]
Conditions To Avoid - Instability:	Stable under normal temperatures and pressures.
Incompatibility - Materials To Avoid:	Avoid contact with: bromide trifluoride. 2-furan percarboxylic acid because calcium chloride is incompatible with those substances. Contact with zinc forms flammable hydrogen gas, which can be explosive. Catalyzes exothermic polymerization of methyl vinyl ether. Reaction of bromide impurity with oxidizing materials may generate trace levels of impurities such as bromates.
Hazardous Decomposition or Byproducts:	Formed under fire conditions: hydrogen chloride gas, calcium oxide
Possibility of Hazardous Reactions:	Will occur [] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	None known.

11. Toxicological Information

Toxicological Information:	Mutagenicity: This product has not been investigated for mutagenic effects. Embryotoxicity: This product has not been investigated for embryotoxic effects. Teratogenicity: This product has not been investigated for teratogenic effects. Reproductive Toxicity: This product has not been investigated for toxic reproductive effects.
Irritation or Corrosion:	No data available.
Symptoms related to Toxicological Characteristics:	No data available.
Sensitization:	No data available.
Chronic Toxicological Effects:	The toxicological properties of this material have not been fully investigated.
Carcinogenicity/Other Information:	No component is listed as a carcinogenic by IARC, NTP, OSHA, and ACGIH.
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

General Ecological Information:	The available data on this material does not indicate any undue hazard to the environment under anticipated use and storage. All work practices must be aimed at eliminating environmental contamination. Any waste due to spillage or leakage should be contained and disposed of accordingly, see above under Section 6 "Accidental Release Measures."
Results of PBT and vPvB assessment:	No data available.
Persistence and Degradability:	Calcium chloride is believed not to persist in the environment because it is readily dissociated into calcium and chloride ions in water. Both ions originally exist in nature, and their concentrations in surface water will depend on various factors, such as geological parameters, weathering and human activities.
Bioaccumulative Potential:	Calcium chloride and its dissociated forms (calcium and chloride ions) are ubiquitous in the environment. Calcium and chloride ions can also be found as constituents in organisms. Considering its dissociation properties, calcium chloride is not expected to accumulate in living organisms.
Mobility in Soil:	Chloride ions are mobile in soil eventually draining into surface water.

13. Disposal Considerations

Waste Disposal Method:	PRODUCT: Reuse or reprocess, if possible. Waste disposal must be done following all Federal, State and Local regulations. Regulations may vary in different locations. Report spills if applicable. Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local waste regulatory authority. CONTAINER: Dispose properly accordingly to regulations on empty containers in your locality or make available to a container reconditioning facility for recycling.
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14. Transport Information

SAFETY DATA SHEET

ACTION 5%

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not Regulated.
Trade Name: ACTION 5%

DOT Hazard Class:
UN/NA Number:

LAND TRANSPORT (Canadian TDG):

TDG Shipping Name:
UN Number:
Hazard Class: **TDG Classification:**

MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Not Regulated. Trade Name: ACTION 5%
UN Number: **Packing Group:**
Hazard Class: **IMDG MFAG Number:** N.A.
IMDG EMS Page:

AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not Regulated. Trade Name: ACTION 5%

Additional Transport Information: Placards / Markings: N.A.

Emergency Response Guide Number: N.A.

Reportable Quantity: N.A.

15. Regulatory Information

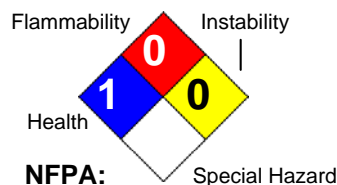
16. Other Information

Revision Date: 03/29/2016

Hazard Rating System:

HEALTH		1
FLAMMABILITY		0
REACTIVITY		0
PPE		

HMIS:



Additional Information About This Product: No data available.

This Product:

Company Policy or Disclaimer:

ACTION 10



ANALYSIS (%W/V)

Calcium (Ca) as chloride 10%

Formulated with Stoller's proprietary mix of Co-Factors.

GENERAL INFORMATION

- ACTION 10 is a secondary nutrient combined with natural growth activators. ACTION 10, in conjunction with a good nutritional program, provides an extra boost to seedling establishment and root development.
- ACTION 10 provides an important boost to any plant's tolerance to adverse conditions and stresses. Action 10 will enhance crop growth when temperatures prevail below 21 °C or above 31 °C and plant growth is suspended.
- ACTION 10 is completely available and absorbed by the leaf surface or the root system.
- ACTION 10 is designed for use in foliar, seed row, seed and transplant water application and is non-phytotoxic when used as directed.

MIXING INSTRUCTIONS

ACTION 10 will disperse in water with little agitation.
Many other agricultural chemicals can be sprayed simultaneously.

CAUTION: Always conduct a 'Jar Test' using all products in proper proportion to establish physical compatibility.

SHAKE WELL BEFORE MIXING

STORE IN A COOL PLACE OUT OF DIRECT SUNLIGHT

WARNING: Harmful if swallowed. Avoid contact with skin, eyes and clothing. Wash thoroughly with soap and water after handling. Avoid breathing spray mist. Use gloves and goggles.

CONDITIONS OF SALE

1. Seller warrants that this product consists of the ingredients specified and is reasonably fit for the purpose stated on this label when used in accordance with directions under normal conditions of use. No one, other than an officer of Seller, is authorised to make any warranty, guarantee or direction concerning this product. 2. Because the time, place, rate of application and other conditions of use are beyond Seller's control, Seller's liability from handling, storage and use of this product is limited to replacement of product or refund of purchase price.

BF AUS 1116



ACTION 10

STOLLER AUSTRALIA PTY. LTD.

A.C.N. 065 320 747

1 Creswell Rd Phone (08) 8169 0900
Largs Bay Fax (08) 8169 0909
South Australia 5016 www.stoller.com.au

CONTENTS 1 5 10 1000 LITRES

DIRECTIONS FOR USE

Crop	Rate	Comment
Cotton	1 L/ha	Apply in-furrow at planting directly onto the seed where Black Rot is a problem.
	1 L/ha	Apply in-furrow at planting for improved germination.
	500ml to 1 L/ha	Apply as a foliar spray if growing/weather conditions are conducive to Black Root Rot or slow growth persist.
Sugarcane, Corn, Wheat, Barley	500ml to 1 L/ha	Apply in-furrow at planting or as a foliar spray as soon as the plant is a large enough target.
Green Beans, French Beans	500 ml/ha	Apply as a foliar spray for improved growth after planting or when adverse weather conditions persist.
	1 L/ha	Apply in furrow at planting directly onto the seed where Red Root Rot is a problem.
Faba beans, Chick peas, Soybeans, Lentils	500 ml/ha	Apply as a foliar spray from first flower bud to first full flowers open.
Greenhouse in soil Tomato, Capsicum, Cucumbers, Egg Plant	200ml / 1000 M ²	Apply every two weeks, through drip system to the soil.
Hydroponics (All crops and systems)	1L/1000L	Add directly into the A tank with standard solution.
All Vegetables (assist with root development)	1 – 2 L/ha	In furrow, add in fertiliser solution, Action 10 is compatible with Stoller ClearStart range.
Potatoes (Increase tubers)	5 L/ha	In furrow with ClearStart
Vegetables Trees/Vines	1 – 2 L/ha	Apply through fertigation, every two weeks.
Strawberries & Raspberries Including all small berries	1 – 2 L/ha	Apply through fertigation, every two weeks.
Turf	1 - 2 L/ha	Apply via fertigation to encourage fine root growth.

All other crops, consult you Agronomist/Consultant or your Stoller Australia Distributor

SEED TREATMENT (General)

To improve seedling establishment and early vigour, apply ACTION 10 to the seed at 500 ml to 1.0 litres per 100kgs of seed (grain). ACTION 10 is water based and should not be mixed with oil based seed treatments. Allow seed to dry before applying oil based treatments. Do not use treated seed for food, feed or oil purpose.

FOLIAR APPLICATION (General)

For continued healthy root growth and plant integrity apply ACTION 10 at regular intervals at a rate of 500 ml to 1.0 litres per hectare. Dilution rates should not exceed 2% (i.e. 2 litres of ACTION 10 should be mixed with a minimum of 100 litres of water).

1. Product and Company Identification

Product Code: FGAU577
Product Name: ACTION 10
Trade Name: ACTION 10
Company Name: Stoller Australia Pty Ltd
1 Creswell Road
Largs Bay
South Australia 5016
Web site address: www.stoller.com.au
Email address: stoller@stoller.com.au
Emergency Contact: STOLLER PRODUCTION CHEMIST
Contact number: 08 8169-0988
Information: 1800 337-845
Intended Use: For agricultural use only

2. Hazards Identification

Serious Eye Damage/Eye Irritation, Category 2



GHS Signal Word: **Warning**

GHS Hazard Phrases: H319 - Causes serious eye irritation.

GHS Precaution Phrases: P264 - Wash hands thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

GHS Response Phrases: P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+313 - If eye irritation persists, get medical advice/attention.

GHS Storage and Disposal Phrases: No phrases apply.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

Potential Health Effects (Acute and Chronic): Hazards not otherwise classified (HNOC) or not covered by GHS: None.
Chronic exposures to skin and mucous membranes that cause irritation may cause a chronic dermatitis or mucosal membrane problem.

Inhalation: Inhaling mist, spray, or vapor may cause irritation to upper respiratory tract (nose and throat). Nasal mucosal and oropharyngeal erythema.

Skin Contact: Skin irritation. Skin exposure may cause slight irritation, redness, itching, swelling. May cause more severe response if skin is damp, abraded (scratched or cut), or covered by clothing, gloves or footwear. Prolonged contact may cause more severe symptoms. Damage is localized to contact areas.

Eye Contact: Causes eye irritation. Eye exposure may cause serious eye irritation, pain, and/or damage to the eye. May cause conjunctival swelling and cornea opacification from hypertonic solution. Corneal eye pain, redness, acute corneal thickening or whitening.

Ingestion: Consumption of hypertonic solutions causes nausea, vomiting, and increased thirst.

Medical Conditions Generally Aggravated By Exposure: Any skin condition that disrupts the skin, such as abrasions, cuts, psoriasis, fungal infections, etc. Any eye condition that compromises tear production, conjunctiva, or normal corneal homeostasis.

3. Composition/Information on Ingredients

CAS #	Components (Chemical Name)	Concentration	
22691-02-7	Calcium chloride (CaCl ₂), hydrate	<15.0 %	

4. First Aid Measures

Emergency and First Aid Procedures:	Victims of severe exposure to chemicals must be taken to health providing centers for medical attention. Always bring with victim a copy of label and SDS of product to health professional.
In Case of Inhalation:	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
In Case of Skin Contact:	Wash with plenty of water. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash before re-use.
In Case of Eye Contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation occurs, get medical advice/attention.
In Case of Ingestion:	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.
Signs and Symptoms of Exposure:	Solution and/or solids may be visible on the skin and/or eyes. Localized redness, warmth, and irritation consistent with mechanism of injury: abrasion, burn, hypertonic solution.
Note to Physician:	Treat symptomatically and supportively.

5. Fire Fighting Measures

Flash Pt:	N.A.
Explosive Limits:	LEL: N.A. UEL: N.A.
Autoignition Pt:	N.A.
Suitable Extinguishing Media:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media:	None known.
Fire Fighting Instructions:	Keep unnecessary people away; isolate hazard area and deny entry. Fight fire for other material that is burning. Water should be applied in large quantities as fine spray. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Wear protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.
Flammable Properties and Hazards:	This material does not burn.
Hazardous Combustion Products:	Formed under fire conditions: hydrogen chloride gas, calcium oxide

6. Accidental Release Measures

Protective Precautions, Protective Equipment and Emergency Procedures: Isolate the area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard on some surfaces. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures.

Environmental Precautions: Prevent entry into waterways, sewers, basements or confined areas. See Section 12, Ecological Information.

Steps To Be Taken In Case Material Is Released Or Spilled: Small and large spills: Contain spilled material if possible. Absorb with materials such as sand. Collect in suitable and properly labeled containers. Flush residue with water. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Precautions To Be Taken in Handling: Avoid contact with eyes, skin, and clothing. Do not swallow. Wash thoroughly after handling. Wear personal protective equipment as described in Section 8, Exposure Controls/Personal Protection.

Precautions To Be Taken in Storing: Protect from atmospheric moisture. Keep containers tightly closed when not in use. Keep separated from incompatible substances see Section 10, Stability and Reactivity.

8. Exposure Controls/Personal Protection

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
22691-02-7	Calcium chloride (CaCl ₂), hydrate	No data.	TLV: 10 mg/m ³	No data.

Respiratory Equipment (Specify Type): Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In dusty or misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: high efficiency particulate air (HEPA) N95. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Eye Protection: Wear safety glasses with side-shields. Wear chemical safety goggles and/or a face-shield to protect against skin and eye contact when appropriate.

Protective Gloves: Use gloves chemically resistant to this material. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Neoprene, Polyvinyl chloride ("PVC" or "vinyl"), Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other Protective Clothing: Wear clean, body-covering clothing. Wear appropriate clothing to avoid skin contact.

Engineering Controls (Ventilation etc.): Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Work/Hygienic/Maintenance Practices: Use good personal hygiene. Do not consume or store food in the work area. Wash hands and affected skin immediately after handling, before smoking or eating, before breaks, and at the end of the workday.

9. Physical and Chemical Properties

Physical States:	[] Gas [X] Liquid [] Solid
Appearance and Odor:	Clear to light amber in color. Very slight characteristic odor.
pH:	~ 5.3 - 7.3
Freezing Point:	N.E.
Boiling Point:	> 240.00 F
Flash Pt:	N.A.
Evaporation Rate:	N.E.
Flammability (solid, gas):	Material will not burn.
Explosive Limits:	LEL: N.A. UEL: N.A.
Vapor Pressure (vs. Air or mm Hg):	N.E.
Vapor Density (vs. Air = 1):	N.E.
Specific Gravity (Water = 1):	~ 1.11 - 1.15
Density:	~ 10.5 LB/GA
Bulk density:	~ 9.4
Solubility in Water:	Soluble
Saturated Vapor Concentration:	N.E.
Octanol/Water Partition Coefficient:	No data.
Percent Volatile:	N.A.
Autoignition Pt:	N.A.
Decomposition Temperature:	N.A.
Viscosity:	N.E.

10. Stability and Reactivity

Reactivity:	Hygroscopic.
Stability:	Unstable [] Stable [X]
Conditions To Avoid - Instability:	Stable under normal temperatures and pressures.
Incompatibility - Materials To Avoid:	Avoid contact with: bromide trifluoride. 2-furan percarboxylic acid because calcium chloride is incompatible with those substances. Contact with zinc forms flammable hydrogen gas, which can be explosive. Catalyzes exothermic polymerization of methyl vinyl ether. Reaction of bromide impurity with oxidizing materials may generate trace levels of impurities such as bromates.
Hazardous Decomposition or Byproducts:	Formed under fire conditions: hydrogen chloride gas, calcium oxide
Possibility of Hazardous Reactions:	Will occur [] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	None known.

11. Toxicological Information

Toxicological Information:	Mutagenicity: This product has not been investigated for mutagenic effects. Embryotoxicity: This product has not been investigated for embryotoxic effects. Teratogenicity: This product has not been investigated for teratogenic effects. Reproductive Toxicity: This product has not been investigated for toxic reproductive effects.
Irritation or Corrosion:	No data available.
Symptoms related to Toxicological Characteristics:	No data available.
Sensitization:	No data available.
Chronic Toxicological Effects:	The toxicological properties of this material have not been fully investigated.
Carcinogenicity/Other Information:	No component is listed as a carcinogenic by IARC, NTP, OSHA, and ACGIH.
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

General Ecological Information:	The available data on this material does not indicate any undue hazard to the environment under anticipated use and storage. All work practices must be aimed at eliminating environmental contamination. Any waste due to spillage or leakage should be contained and disposed of accordingly, see above under Section 6 "Accidental Release Measures."
Results of PBT and vPvB assessment:	No data available.
Persistence and Degradability:	Calcium chloride is believed not to persist in the environment because it is readily dissociated into calcium and chloride ions in water. Both ions originally exist in nature, and their concentrations in surface water will depend on various factors, such as geological parameters, weathering and human activities.
Bioaccumulative Potential:	Calcium chloride and its dissociated forms (calcium and chloride ions) are ubiquitous in the environment. Calcium and chloride ions can also be found as constituents in organisms. Considering its dissociation properties, calcium chloride is not expected to accumulate in living organisms.
Mobility in Soil:	Chloride ions are mobile in soil eventually draining into surface water.

13. Disposal Considerations

Waste Disposal Method:	PRODUCT: Reuse or reprocess, if possible. Waste disposal must be done following all Federal, State and Local regulations. Regulations may vary in different locations. Report spills if applicable. Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local waste regulatory authority. CONTAINER: Dispose properly accordingly to regulations on empty containers in your locality or make available to a container reconditioning facility for recycling.
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14. Transport Information

SAFETY DATA SHEET ACTION 10

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Printed: 08/08/2017
Revision: 08/08/2017

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not Regulated.
Trade Name: ACTION 10

DOT Hazard Class:
UN/NA Number:

LAND TRANSPORT (Canadian TDG):

TDG Shipping Name:
UN Number:
Hazard Class: TDG Classification:

MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Not Regulated. Trade Name: ACTION 10
UN Number: Packing Group:
Hazard Class: IMDG MFAG Number: N.A.
IMDG EMS Page:

AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not Regulated. Trade Name: ACTION 10

Additional Transport Placards / Markings: N.A.

Information:

Emergency Response Guide Number: N.A.

Reportable Quantity: N.A.

15. Regulatory Information

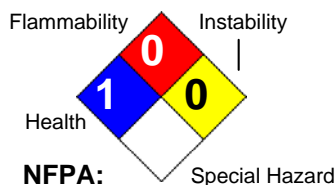
16. Other Information

Revision Date:

Hazard Rating System:

HEALTH		1
FLAMMABILITY		0
REACTIVITY		0
PPE		

HMIS:



Additional Information About This Product: No data available.

This Product:

Company Policy or

Disclaimer:

SAFETY DATA SHEET

MICRO PLUS COPPER

Page: 1

Printed: 10/13/2016

Revision: 03/24/2016

Supersedes Revision: 06/01/2015

This SDS complies with the Canadian Hazardous Products Regulations of 2015

1. Product and Company Identification

Product Code: Z-MPC
Product Name: MICRO PLUS COPPER
Company Name: Stoller Enterprises
284 Industrial Drive
Regina, SK,
Web site address: <http://stollerenterprises.ca/>
Emergency Contact: CHEMTREC, In the US and Canada call 1 (800)424-9300
CHEMTREC, From other countries call +1 (703)527-3887
Information: For agricultural use only 1 (800)539-5283
Intended Use: For agricultural use only
Synonyms: Chelated micronutrient solution

2. Hazards Identification

Acute Toxicity: Inhalation, Category 5
Serious Eye Damage/Eye Irritation, Category 2B
Acute Toxicity: Skin, Category 5
Acute Toxicity: Oral, Category 5
Aquatic Toxicity (Acute), Category 1
Aquatic Toxicity (Chronic), Category 1



GHS Signal Word: **Warning**
GHS Hazard Phrases: H303 - May be harmful if swallowed.
H313 - May be harmful in contact with skin.
H320 - Causes eye irritation.
H333 - May be harmful if inhaled.
H400 - Very toxic to aquatic life.
H410 - Very toxic to aquatic life with long lasting effects.
GHS Precaution Phrases: P264 - Wash hands thoroughly after handling.
P273 - Avoid release to the environment.
GHS Response Phrases: P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P337+313 - If eye irritation persists, get medical advice/attention.
P391 - Collect spillage.
GHS Storage and Disposal Phrases: P501 - Dispose of contents/container to ...
Potential Health Effects (Acute and Chronic): Hazards not otherwise classified (HNOC) or not covered by GHS: None.

3. Composition/Information on Ingredients

CAS #	Components (Chemical Name)	Concentration	
7758-99-8	Copper(II) sulfate pentahydrate	<25.0 %	
17863-38-6	Ethanol, 2-amino-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	<15.0 %	

4. First Aid Measures

Emergency and First Aid Procedures:	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
In Case of Inhalation:	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In Case of Skin Contact:	Wash off with soap and plenty of water. Take victim immediately to hospital.
In Case of Eye Contact:	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
In Case of Ingestion:	Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Signs and Symptoms of Exposure:	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Indication of any immediate medical attention and special treatment needed:	No data available.

5. Fire Fighting Measures

Flash Pt:	NA
Explosive Limits:	LEL: N.A. UEL: N.A.
Autoignition Pt:	No data.
Suitable Extinguishing Media:	Use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam.
Fire Fighting Instructions:	Wear self contained breathing apparatus for fire fighting if necessary. Further information: No data available.
Flammable Properties and Hazards:	Sulphur oxides.
Hazardous Combustion Products:	No data available.

6. Accidental Release Measures

Protective Precautions, Protective Equipment and Emergency Procedures:	Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.
Environmental Precautions:	If spilling or leakage occurs, contain and clean if safe to do so. Prevent from reaching drains, sewer, or waterways. Do not let product enter drains. Discharge into the environment must be avoided.
Steps To Be Taken In Case Material Is Released Or Spilled:	Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. Handling and Storage

Precautions To Be Taken in Handling:	Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where
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SAFETY DATA SHEET

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Page: 3

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Supersedes Revision: 06/01/2015

dust is formed. For precautions see section 2.

Precautions To Be Taken in Storing: Keep container tightly closed in a dry and well-ventilated place. Air sensitive. Handle and store under inert gas.

Storage class 510) Non Combustible.

Other Precautions: Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure Controls/Personal Protection

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
7758-99-8	Copper(II) sulfate pentahydrate	No data.	TLV: 1 mg/m ³ as Cu	No data.
17863-38-6	Ethanol, 2-amino-, 2-hydroxy-1,2,3-propanetricarboxylate (salt)	No data.	No data.	No data.

Respiratory Equipment (Specify Type): Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye Protection: Face shield and safety glasses.

Protective Gloves: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact.
Material: Nitrile rubber Minimum layer thickness: 0.11 mm.
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Other Protective Clothing: Complete suit protecting against chemicals.

Engineering Controls (Ventilation etc.): Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Environmental Exposure Controls: If spilling or leakage occurs, contain and clean if safe to do so. Prevent from reaching drains, sewer, or waterways. Do not let product enter drains. Discharge into the environment must be avoided.

9. Physical and Chemical Properties

Physical States: [] Gas [X] Liquid [] Solid

Appearance and Odor: Appearance:

Color: blue.

pH: 7 - 9

Melting Point: No data.

Boiling Point: No data.

Flash Pt: NA

Evaporation Rate: N.E.

Flammability (solid, gas): No data available.

Explosive Limits: LEL: N.A. UEL: N.A.

Vapor Pressure (vs. Air or mm Hg): N.E.

Vapor Density (vs. Air = 1): N.E.

SAFETY DATA SHEET

MICRO PLUS COPPER

Page: 4

Printed: 10/13/2016

Revision: 03/24/2016

Supersedes Revision: 06/01/2015

Specific Gravity (Water = 1):	1.17 - 1.21	at 20.0 C
Solubility in Water:	Soluble	
Saturated Vapor Concentration:	N.E.	
Octanol/Water Partition Coefficient:	N.E.	
Percent Volatile:	N.A.	
Autoignition Pt:	No data.	
Decomposition Temperature:	N.E.	
Viscosity:	N.E.	

10. Stability and Reactivity

Reactivity:	No data available.
Stability:	Unstable [] Stable [X]
Conditions To Avoid - Instability:	Exposure to moisture.
Incompatibility - Materials To Avoid:	Powdered metals, Anhydrous copper(II) sulfate, Reacts violently with 1, hydroxylamine, magnesium.
Hazardous Decomposition or Byproducts:	No data available. In the event of fire: see section 5.
Possibility of Hazardous Reactions:	Will occur [] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	No data available.

11. Toxicological Information

Toxicological Information:	Acute toxicity. Germ cell mutagenicity: No data available. Reproductive Toxicity: Aspiration hazard: CAS# 7758-99-8: Acute toxicity, LD50, Oral, Rat, 300.0 MG/KG. Result: Behavioral: Altered sleep time (including change in righting reflex). Behavioral: Change in motor activity (specific assay). Behavioral: Antipsychotic. ; "Agricultural Chemicals," 1976/77 revision, Thomson, W.T., 4 vols., Thomson Publications, Fresno, CA, Vol/p/yr: 2,182, 1977
Irritation or Corrosion:	Skin corrosion/irritation. Irritating to skin . Serious eye damage/eye irritation:
Sensitization:	Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.
Chronic Toxicological Effects:	Specific target organ toxicity -single exposure (Globally Harmonized System) No data available. Specific target organ toxicity -repeated exposure: no data available.
Carcinogenicity/Other Information:	IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Carcinogenicity:	NTP? No IARC Monographs? No OSHA Regulated? No

12. Ecological Information

Results of PBT and vPvB assessment: No data available.
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Persistence and Degradability: The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

13. Disposal Considerations

Waste Disposal Method: PRODUCT:
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging:

14. Transport Information

LAND TRANSPORT (Canadian TDG):

TDG Shipping Name:

UN Number:

Hazard Class:

TDG Classification:

MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name:

UN Number:

Hazard Class:

Packing Group:

IMDG MFAG Number:

IMDG EMS Page:

Marine Pollutant:

Yes

15. Regulatory Information

Canadian WHMIS Classification:

No data available.

Regulatory Information Statement:

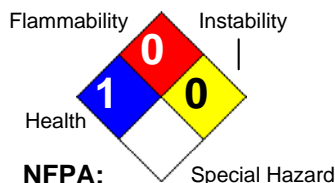
16. Other Information

Revision Date: 03/24/2016

Hazard Rating System:

HEALTH		1
FLAMMABILITY		0
PHYSICAL		0
PPE		

HMIS:



Additional Information About This Product: No data available.

Company Policy or Disclaimer:



GROUP 4 INSECTICIDE

STRESS SHIELD® 600

Stress Shield 600 is a systemic seed treatment insecticide for protection of wheat, barley, oats and legumes against certain insect pests.

Insecticide

COMMERCIAL

Suspension



WARNING

POISON

GUARANTEE: Imidacloprid 600 g/L

Contains 1,2-benzisothiazolin-3-one at 0.048% as a preservative.

REGISTRATION NO. 30668 PEST CONTROL PRODUCTS ACT

READ THE LABEL BEFORE USING

PROTECT FROM FREEZING

NET CONTENTS: 0.25 - 1000 L

BAYER CROPSCIENCE INC.
200-160 Quarry Park Blvd., SE
Calgary, Alberta T2C 3G3

24 HOUR EMERGENCY PHONE: 1-800-334-7577

GROWER INFORMATION: 1-888-283-6847

SPECIAL USE RESTRICTIONS: This product contains no colourant. Seed treated with Stress Shield 600 must be conspicuously coloured. Regulations pertaining to the *Seeds Act* must be strictly adhered to when using this product.

®Stress Shield is a registered trademark of Bayer CropScience

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GENERAL INFORMATION

Section 1: Notice to User

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

Section 2: The Product

Stress Shield 600 is a systemic seed treatment insecticide that provides protection of certain crops from damage caused by listed chewing and sucking insects through contact and systemic activity. Thorough seed coverage is required for maximum protection of seed. When rate ranges are given, use the higher rate when insect pressure is expected to be high. Under high insect pressures, a foliar insecticide may be required, therefore monitor crops regularly for insect infestation levels. Do not apply any subsequent application of a Group 4 Insecticide (i.e., in-furrow or foliar application) following treatment with Stress Shield 600.

SAFETY AND HANDLING

Section 3: Precautions, Protective Clothing and Equipment

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

Harmful or fatal if swallowed and harmful if inhaled. Avoid breathing vapour or spray mist. When handling Stress Shield 600 or seed treated with Stress Shield 600, work in a well-ventilated area. Wear cotton coveralls over long-sleeved shirt and long pants, chemical resistant gloves, and shoes plus socks. DO NOT use leather or cloth gloves. Wear goggles and a suitable dust mask approved by NIOSH/MSHA when handling this product. In commercial facilities, all workers involved in mixing/loading, application, bagging, clean-up and repair must wear a NIOSH/MSHA/BHSE-approved respirator. Use good personal hygiene, washing hands and exposed skin before eating, drinking or smoking. No food, drink or tobacco should be allowed in areas of chemical storage or use.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.bayercropscience.ca.

Section 4: First Aid and Toxicological Information

FIRST AID:

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed	Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.
If inhaled	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.
If in eyes	Hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION:

Treat symptomatically.

Section 5: Environmental Hazards

Toxic to birds and aquatic organisms.

Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators

To help minimize the dust generated during planting, refer to the complete guidance “Pollinator Protection and Responsible Use of Treated Seed- Best Management Practices” on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators .

When using a seed flow lubricant with soybean seed treated with Stress Shield 600, only a dust-reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant. Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds. When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies
Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.

Section 6: Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed.
Keep container closed.

Do not store Stress Shield 600 in direct sunlight.

Do not store Stress Shield 600 above 35°C.

Disposal of Container

For non-returnable containers:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

For recyclable containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For returnable containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For refillable containers:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

Triple rinse instructions for container disposal (for recyclable and disposable containers only):

This container should be triple-rinsed prior to its disposal. The rinsate can be added to the seed treatment provided the total volume of water does not exceed 6 % of the container size. Add 1/3 of the rinse water to the container and swish the contents thoroughly. Empty the rinsate into the seed treater holding tank and repeat this process two more times making sure the total volume of rinsate does not exceed 6%. Make sure rinsate is thoroughly mixed with seed treatment before treating. Close the container.

CAUTION: Do not dilute beyond 6% or excess seed wetness may result in seed handling difficulties. Using excess water can also cause Stress Shield 600 to thin resulting in settling of solids in the product. Be sure to adjust the undiluted application rate up by 6% to compensate for the dilution of the product caused by the addition of rinsate.

Disposal of unused, unwanted product:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Section 8: Crops and Pests

8.1 CEREALS: Wheat (durum, winter and spring), barley (spring and winter) and oats.

To provide early-season protection against crop stand injury caused by wireworm and larvae of European chafer and Japanese beetle apply Stress Shield 600 at 17-50 mL/100 kg of seed. For fields with a history of moderate to high wireworm pressure, treat crops at 34 – 50 mL / 100 kg seed. Use the higher rate when infestation pressures are expected to be heavy. Do not apply any subsequent application of a Group 4 Insecticide (i.e. in-furrow or foliar application) following treatment with Stress Shield 600.

For use in commercial and on-farm seed treatment equipment. Mix thoroughly before use or use entire container at one time. All seed must be conspicuously coloured at the time of treatment in accordance with Seed Act and Regulations. Seed treated with Stress Shield 600 may reduce seed flow in the seed drill. Recalibration of the seed drill may be required to obtain correct seeding rate before planting.

Crop	Pest	Use Rate / 100 kg seed		Remarks
		ml product	grams a.i.	
Wheat (durum, spring, winter), Barley, Oats	Wireworm Larvae of European chafer and Japanese beetle	17-50	10-30	Dilute in sufficient liquid to achieve uniform distribution on the seed.

Pre-test the germination of a small sample of each seed lot with Stress Shield 600 prior to commercial application to the whole lot. Stress Shield 600 can be used as an over-treatment

8.2 TANK MIXTURES WITH FUNGICIDES

For control of certain seed and soil-borne pathogens in wheat, barley and oat seeds and seedlings, Stress Shield 600 may be mixed with Raxil T, Raxil MD and EverGol Energy. Follow all appropriate directions and precautions as specified on the fungicide labels.

8.3 LEGUME VEGETABLES

Stress Shield 600 is a systemic insecticide seed treatment for early season protection of listed edible podded beans and dry shelled beans from potato leafhopper and crop stand injury caused by wireworm, and pea leaf weevil. In soybeans, Stress Shield 600 provides early season protection against soybean aphid, crop stand injury caused by wireworm, larvae of European chafer and Japanese beetle and seedcorn maggot and early season defoliation caused by the overwintering generation of bean leaf beetle.

Do not apply any subsequent application of a Group 4 Insecticide (i.e., in-furrow or foliar application) following treatment with Stress Shield 600.

Crop	Pest	Use rate/100 kg seed	
		mL product	grams a.i.
<p>Crop Subgroup 6A: Edible-Podded Legume Vegetables (except peas)</p> <p>Bean (<i>Phaseolus</i> spp.) - Includes runner bean, snap bean, wax bean</p> <p>Bean (<i>Vigna</i> spp.) - Includes asparagus bean, Chinese longbean, moth bean, yardlong bean</p> <p>Jackbean</p>	Potato leafhopper, Wireworm	104	62.5
<p>Crop Subgroup 6C: Dried Shelled Pea and Bean (except soybeans and dry shelled peas)</p> <p>Bean (<i>Lupinus</i> spp.) - Includes grain lupin, sweet lupin, white lupin, white sweet lupin</p> <p>Bean (<i>Phaseolus</i> spp.) - Includes field bean(dry common and coloured) such as kidney, black cranberry pink and navy bean, lima bean, pinto bean, tepary bean</p> <p>Bean (<i>Vigna</i> spp.) - Includes adzuki bean, blackeyed pea, catjang, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean</p> <p>Broad bean (fava bean)</p>	Potato leafhopper, Wireworm	104	62.5
Soybeans*	Soybean aphid, Bean leaf beetle, Seedcorn maggot, Wireworm, Larvae of European chafer and Japanese beetle	104-208	62.5-125
Field peas *	Pea leaf weevil	104-208	62.5-125
	Wireworm	104	62.5
Fababean	Pea leaf weevil, Wireworm	104	62.5
Chickpeas Lentils	Wireworm	104	62.5

* For soybeans, and for field peas with pea leaf weevil, use the higher rate for:

1. early seeding;
2. when insect populations are expected to be high, or;
3. extended control period for aphids.

Ensure product is thoroughly mixed prior to application or use entire container at one time. Apply Stress Shield 600 through slurry applicator seed treaters which provide uniform seed coverage. Uneven or incomplete seed coverage may not give the desired level of insect control. Maintain constant agitation of the slurry during application. Allow the seed to dry before bagging or storing in bulk containers. This product contains no colourant. All seed must be conspicuously coloured at the time of treatment in accordance with *Seed Act and Regulations*.

8.4 TANK MIXTURES WITH FUNGICIDES

For control of certain seed and soil-borne pathogens in legume seeds and seedlings, Stress Shield 600 may be mixed with the following seed treatment fungicides: Trilex AL, Trilex AL Concentrate, Trilex FS, Allegiance, EverGol Energy, EverGol Xtend, Apron Max RFC and Apron Max RTA. Follow all appropriate directions and precautions as specified on the fungicide labels. Make sure that the specific legume crop to be treated is registered on the fungicide partner as well.

SECTION 9: USE RESTRICTIONS AND LIMITATIONS

9.1 USE RESTRICTIONS:

Do not use treated seed for food, feed or oil processing.

Do not graze or feed livestock on treated areas for four weeks after planting.

9.2 SEED QUALITY:

Laboratory and field studies have shown that Stress Shield 600 will not adversely affect germination of treated seeds. Treatment of highly mechanically damaged seed, or seed of known low vigour and poor quality may result in reduced germination and/or reduction of seed and seedling vigour. If seed lot quality is unknown, conduct a germination test on a small portion of seed before committing the total seed lot to a selected chemical treatment. Due to seed quality conditions beyond the control of Bayer CropScience, no claims are made to guarantee germination of carry-over seed.

9.3 LABELLING TREATED SEED:

All bags containing treated seed must be labelled or tagged as follows: “This seed has been treated with Stress Shield 600 seed protectant which contains imidacloprid. Do not use for feed, food or oil processing. Store away from feeds and other foodstuffs. Toxic to birds. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.”

Additionally, all treated soybean seed for sale or use in Canada must be labelled with the following information:

- Imidacloprid is toxic to bees. Dust generated during planting of treated seed may be harmful to bees and other pollinators.
- To help minimize the dust generated during planting, refer to the complete guidance “Pollinator Protection and Responsible Use of Treated Seed- Best Management Practices” on the Health Canada webpage on pollinator protection at www.healthcanada.gc.ca/pollinators.
- When using a seed flow lubricant with this treated seed, only a dust-reducing fluency agent is permitted. Talc and graphite are not permitted to be used as a seed flow lubricant for soybean seed treated with this insecticide. Carefully follow use directions for the seed flow lubricant.
- Do not load or clean planting equipment near bee colonies, and avoid places where bees may be foraging, such as flowering crops or weeds.
- When turning on the planter, avoid engaging the system where emitted dust may contact honey bee colonies.
- Spilled or exposed seeds and dust must be incorporated into the soil or cleaned up from the soil surface.

9.4 SPECIAL USE RESTRICTIONS:

This product contains no colourant. Seed treated with this product must be conspicuously coloured. Regulations pertaining to the *Seeds Act* must be strictly adhered to when using this product.

SECTION 10: MIXING INSTRUCTIONS

Storage of Stress Shield 600 at low temperatures is not recommended. Prior to and during application, Stress Shield must be thoroughly agitated to ensure uniform mixing of the product. Due to the viscosity of the material, it should be kept above 10 °C prior to and during application. Do not apply direct heat to container.

SECTION 11: RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Stress Shield 600 contains a Group 4 insecticide. Any insect population may contain individuals naturally resistant to Stress Shield 600 and other Group 4 insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of Stress Shield 600 or other Group 4 insecticides with different groups that control the same pests in a field.
- Use tank mixtures with insecticides from a different group when such use is permitted.

- Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.

For further information or to report suspected resistance contact Bayer CropScience Inc. via internet at www.bayercropscience.ca or phone 1-888-283-6847.

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SAFETY DATA SHEET



STRESS SHIELD® 600

Version 2.0 / CDN
102000012782

1/11
Revision Date: 09/08/2016
Print Date: 06/22/2018

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name STRESS SHIELD® 600
Product code (UVP) 06535143
SDS Number 102000012782
PCP Registration No. 30668

Relevant identified uses of the substance or mixture and uses advised against

Use Insecticide, Seed treatment
Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada
Responsible Department Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.
Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations
Acute toxicity(Oral, Inhalation): Category 4

Labelling in accordance with Part 3 of the Hazardous Products Regulations



Signal word: Warning

Hazard statements

Harmful if swallowed or if inhaled

Precautionary statements

Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid breathing mist and spray.

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Use only outdoors or in a well-ventilated area.
IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
Rinse mouth.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Imidacloprid	138261-41-3	48.7
Ethoxylated polyaryphenol	99734-09-5	1.5

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms	To date no symptoms are known.
Indication of any immediate medical attention and special treatment needed	
Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

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Print Date: 06/22/2018

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Foam, Carbon dioxide (CO₂), Dry chemical, Water spray

Unsuitable None known.

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point > 93.4 °C

Auto-ignition temperature No data available

Lower explosion limit No data available

Upper explosion limit No data available

Explosivity Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. If material is accidentally spilled, do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SAFETY DATA SHEET



STRESS SHIELD® 600

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102000012782

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Revision Date: 09/08/2016
Print Date: 06/22/2018

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Imidacloprid	138261-41-3	0.7 mg/m ³ (TWA)		OES BCS*
Glycerine (Mist.)	56-81-5	10 mg/m ³ (TWA)	07 2009	CAD AB OEL
Glycerine (Respirable mist.)	56-81-5	3 mg/m ³ (TWA)	09 2011	CAD BC OEL
Glycerine (Mist.)	56-81-5	10 mg/m ³ (TWA)	09 2011	CAD BC OEL
Glycerine (Mist.)	56-81-5	10 mg/m ³ (TWAEV)	11 2010	CAD ON OEL
Glycerine (Mist.)	56-81-5	10 mg/m ³ (8 HR ACL)	05 2009	CAD SK OEL
Glycerine (Mist.)	56-81-5	20 mg/m ³ (15 MIN ACL)	05 2009	CAD SK OEL
Glycerine (Mist.)	56-81-5	10 mg/m ³ (TWA)	11 2011	OEL (QUE)

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

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STRESS SHIELD® 600

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102000012782

5/11
Revision Date: 09/08/2016
Print Date: 06/22/2018

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.
Hand protection	Chemical resistant nitrile rubber gloves
Eye protection	Tightly fitting safety goggles
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks.
General protective measures	Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	white to light beige
Physical State	suspension
Odor	characteristic
Odour Threshold	No data available
pH	6.5 - 7.5 at 100 % (23 °C)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	1.23 g/cm ³ at 20 °C
Evaporation rate	No data available
Boiling Point	> 100 °C / > 212 °F
Melting / Freezing Point	-10 °C / 14 °F
Water solubility	dispersible
Minimum Ignition Energy	Not applicable
Decomposition temperature	No data available
Partition coefficient: n-octanol/water	No data available
Viscosity	550 - 900 mPaxs at 25 °C 230 - 370 mPaxs at 20 °C Velocity gradient 20 /s 100 - 160 mPaxs at 20 °C Velocity gradient 100 /s
Flash point	> 93.4 °C

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Version 2.0 / CDN
102000012782

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Revision Date: 09/08/2016
Print Date: 06/22/2018

Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	No data available
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	No data available
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Ingestion, Inhalation, Skin Absorption, Eye contact
Immediate Effects	
Eye	May cause mild irritation to eyes.
Skin	May cause mild irritation to the skin.
Ingestion	Harmful or fatal if swallowed.
Inhalation	Harmful if inhaled. Inhalation may cause irritation of nasal passages.
Information on toxicological effects	
Acute oral toxicity	LD50 (Rat) > 300 - < 2,000 mg/kg
Acute inhalation toxicity	LC50 (male Rat) 2.5 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
Acute dermal toxicity	LD50 (male/female combined Rat) > 2,000 mg/kg
Skin irritation	slight irritation (Rabbit)
Eye irritation	slight irritation (Rabbit)
Sensitisation	Non-sensitizing. (Guinea pig)
Assessment STOT Specific target organ toxicity – repeated exposure	

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Imidacloprid did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Imidacloprid was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Imidacloprid was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Imidacloprid caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Imidacloprid is related to parental toxicity.

Assessment developmental toxicity

Imidacloprid caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Imidacloprid are related to maternal toxicity.

Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish

LC50 (Oncorhynchus mykiss (rainbow trout)) 211 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient imidacloprid.

Toxicity to aquatic invertebrates

EC50 (Daphnia magna (Water flea)) 85 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient imidacloprid.

LC50 (Chironomus riparius (non-biting midge)) 0.0552 mg/l

Exposure time: 24 h
The value mentioned relates to the active ingredient imidacloprid.

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Toxicity to aquatic plants	EC50 (Desmodesmus subspicatus (green algae)) > 10 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient imidacloprid.
Biodegradability	Imidacloprid: Not rapidly biodegradable
Koc	Imidacloprid: Koc: 225
Bioaccumulation	Imidacloprid: Does not bioaccumulate.
Mobility in soil	Imidacloprid: Moderately mobile in soils
Environmental precautions	Do not allow to get into surface water, drains and ground water. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility. Dispose in accordance with all local, state/provincial and federal regulations.
Contaminated packaging	Do not re-use empty containers. Triple rinse containers. Puncture container to avoid re-use. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke. Follow advice on product label and/or leaflet.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	3082
Labels	9
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (IMIDACLOPRID)

49CFR Not dangerous goods / not hazardous material

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IMDG

UN number	3082
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (IMIDACLOPRID SOLUTION)

IATA

UN number	3082
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (IMIDACLOPRID SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Further Information	Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1. This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.
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SECTION 15: REGULATORY INFORMATION

PCP Registration No. 30668

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

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None.

Canadian Regulations

Canadian Domestic Substance List

Ethoxylated polyarylphenol 99734-09-5

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 2 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current Canadian WHMIS standard (WHMIS 2015).

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

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This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

SURE-MIX™ SURFACTANT

A blend of surfactant with petroleum hydrocarbons for application with the herbicides ASSURE® II Herbicide, MUSTER® Herbicide, MUSTER® Toss-N-Go® Herbicide or REFINE EXTRA® Herbicide

EMULSIFIABLE CONCENTRATE

COMMERCIAL (AGRICULTURAL)

READ THE LABEL BEFORE USING.

GUARANTEE: Surfactant blend	40.0%
Paraffinic Petroleum Oil	60.0%

REGISTRATION NO. 25467 PEST CONTROL PRODUCTS ACT

KEEP OUT OF REACH OF CHILDREN.

CAUTION: SKIN IRRITANT

SHAKE WELL BEFORE USING

NET CONTENTS: 1L-BULK

AMVAC Canada ULC
1500-885 West Georgia Street
Vancouver, BC, Canada V6C 3E8

PRECAUTIONS:

- KEEP OUT OF REACH OF CHILDREN.
- Do not take internally. Harmful if swallowed or absorbed through the skin.
- Skin irritant. Avoid inhalation of vapour or spray mist and contact with eyes, skin or clothing.
- Wash thoroughly after handling and before eating, drinking or smoking.
- When mixing/loading this product, wear a long sleeved shirt, long trousers, goggles, or a face shield, chemical resistant gloves, a hat and rubber boots.
- If clothing becomes contaminated, remove and wash separate from household laundry before re-use.
- Clean spray equipment thoroughly after use.
- Do not contaminate domestic or irrigation water, lakes, streams or ponds by cleaning of equipment or the disposal of waste.
- This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

FIRST AID:

IF SWALLOWED:

Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING:

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED:

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES:

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing the eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

For medical emergencies, call 1-800-681-4261 (24 hours).

TOXICOLOGICAL INFORMATION: Treat symptomatically.

This product contains Petroleum Distillates. Vomiting may cause aspiration pneumonia.

GENERAL INFORMATION:

SURE-MIX™ SURFACTANT is a blend of surfactant and petroleum hydrocarbons designed for use with ASSURE® II Herbicide, MUSTER® Herbicide, MUSTER® Toss-N-Go® Herbicide, or REFINE EXTRA® Herbicide sprays. Refer to the herbicide labels for detailed use instructions.

DIRECTIONS FOR USE:

SURE-MIX™ Surfactant is registered for use with the following herbicides and tankmixes.

Herbicide	Tank Mixes
ASSURE® II Herbicide	ASSURE® II Herbicide + MUSTER® Herbicide
	ASSURE® II Herbicide + MUSTER® Toss-N-Go Herbicide
REFINE EXTRA® Herbicide	
MUSTER® Herbicide or MUSTER® Toss-N-Go® Herbicide	

Use SURE-MIX™ SURFACTANT at a rate of 0.5 % v/v (0.5 litres per 100 litres of spray solution) with the above herbicides and tank-mixes.

Refer to the "Mixing Instructions" section of this label for specific mixing instructions. Additional surfactant is not required when using SURE-MIX™ SURFACTANT. For best results, follow the timing and specific weed control recommendations stated on each product label. Consult the ASSURE® II Herbicide, MUSTER® Toss-N-Go® Herbicide, MUSTER® Herbicide, and REFINE EXTRA® Herbicide labels for desired use rates, weeds controlled, spray preparation and additional restrictions regarding their use. When using SURE-MIX™ SURFACTANT with MUSTER® Toss-N-Go® Herbicide, MUSTER® Herbicide or with a tank mix of MUSTER® Toss-N-Go® Herbicide or MUSTER® Herbicide + ASSURE® II Herbicide control of stinkweed is obtained with the 20 g/ha rate of MUSTER® Herbicide.

MIXING INSTRUCTIONS:

1. Thoroughly clean the sprayer prior to use. For appropriate cleaning instructions, refer to the label of the product sprayed previously.
2. Fill spray tank half-full with clean water. Keep agitator running.
3. Add the required amount of either REFINE EXTRA® Herbicide, MUSTER® Toss-N-Go® Herbicide or MUSTER® Herbicide or ASSURE® II Herbicide to the spray tank while continuing agitation. If ASSURE® II Herbicide is to be tank mixed with MUSTER® Toss-N-Go® Herbicide, make sure the Toss-N-Go® bags have dissolved before adding ASSURE® II Herbicide.
4. After the herbicide or herbicide mixture has been well mixed, SLOWLY add the required amount of SURE-MIX™ SURFACTANT to the tank with the agitator running. Triple-rinse the emptied container thoroughly and add the rinsing to the spray mixture in the tank.
5. Add the rest of the required water to the tank. Mix well before applying to the crop.
6. On repeat tank loads, ensure that the amount of spray solution left in the tank from the previous load is less than 10% of the volume about to be mixed.

SPRAYER CLEAN-OUT:

For ASSURE® II Herbicide with SURE-MIX™ SURFACTANT, follow steps 1 to 4 and consult the ASSURE® II Herbicide label. For MUSTER® Toss-N-Go® Herbicide, MUSTER® Herbicide, ASSURE® II Herbicide + MUSTER® Herbicide or MUSTER® Toss-N-Go® Herbicide or REFINE EXTRA® Herbicide with SURE-MIX™ SURFACTANT, follow the sprayer clean-out directions on MUSTER® Toss-N-Go® Herbicide or MUSTER® Herbicide or REFINE EXTRA® Herbicide label.

1. Immediately after use, thoroughly clean the sprayer by completely filling spray tank with clean water while adding 1 litre of ammonia (containing 3% ammonia) per 100 litres of water. Agitate to mix water and ammonia. Reduce amount of ammonia added proportionally if higher concentrations of ammonia are used. Flush solution through boom and nozzles, and then add more water to completely refill the tank. Agitate the solution for at least 15 minutes and then flush the boom and nozzles until the spray tank is empty.
2. Remove the nozzles and screens and clean separately in a bucket containing a cleaning agent and water.
3. Fill spray tank half full with clean water.
4. Agitate to thoroughly rinse the tank and flush the water through the boom.

STORAGE:

1. Store in original tightly-closed container and do not allow water to be introduced to this container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store product in cool, dry, locked, well ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross contamination.
5. Product must be stored at temperatures above 5 degrees C.

DISPOSAL/DECONTAMINATION:

1. Triple-rinse or pressure rinse the empty container. Add the rinsing to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the PEST CONTROL PRODUCTS ACT to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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SURE-MIX
GPA00126 Revised 20-JUN-2015 Printed 20-JUN-2015

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"SURE-MIX" is a registered trademark of DuPont.

Product Use

Agricultural Adjuvant

Tradenames and Synonyms

Company Identification

MANUFACTURER/DISTRIBUTOR

E.I. du Pont Canada Company
P.O. Box 2200
Streetsville
Mississauga, Ontario L5M 2H3

PHONE NUMBERS

Product Information : 1-800-387-2122
Medical Emergency : 1-800-441-3637 (24 hours)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
Agricultural adjuvant, surfactant blend		40 %
Paraffinic hydrocarbon, petroleum oil		60 %

HAZARDS IDENTIFICATION

Potential Health Effects

HEALTH HAZARDS: Eye irritant

OTHER EFFECTS OF OVEREXPOSURE:

No other adverse clinical effects have been associated with exposures to this material.

Eye contact with Sure-Mix may cause eye irritation with tearing, pain or blurred vision.

Skin contact with Sure-Mix may cause skin irritation with discomfort or rash.

(HAZARDS IDENTIFICATION - Continued)

Inhalation of high concentrations of the mist or aerosol may cause irritation of the respiratory passages with coughing and discomfort.

Ingestion of Sure-Mix may cause irritation of the digestive tract with stomach pain, heartburn, nausea, vomiting or diarrhea. Ingestion of large amounts may cause central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness. Small amounts of hydrocarbon solvent, if aspirated into the lungs during ingestion or subsequent vomiting, may cause severe lung congestion resulting in labored breathing, coma and death.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

SKIN CONTACT:

IF ON SKIN OR CLOTHING: Wash with soap and water. Remove contaminated clothing and launder separately from household laundry before reuse. Consult a physician or poison control center if irritation develops.

EYE CONTACT:

IF IN EYES: Flush immediately with clean flowing water for at least 15 minutes consult a physician or poison control center if irritation develops.

INGESTION:

IF SWALLOWED: DO NOT INDUCE VOMITING. Give water or milk. Consult a physician immediately or call a poison control center. This product contains PETROLEUM DISTILLATES.

INHALATION:

IF INHALED: Remove person to fresh air. Assist breathing if necessary. Consult a physician immediately or call a poison control center. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

Notes to Physicians

Lavage is indicated for the unresponsive patient who has ingested a large dose. Hydrocarbon pneumonitis is a risk if product is aspirated.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point : 93 C (199 F)
Method : Setaflash Closed Cup - SCC.

Unusual Fire and explosion hazards:
None known

Extinguishing Media

Foam, dry chemical, CO₂, halogenated agents.
Water spray may be used to cool containers, but a water
stream may spread flames.

Fire Fighting Instructions

Wear self contained breathing apparatus with full facepiece
and protective clothing.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL)
sections before proceeding with clean-up. Use appropriate
PERSONAL PROTECTIVE EQUIPMENT during clean-up.

If needed, use MSHA-NIOSH approved respirator for organic
vapors

Initial Containment

If spilled, this material and its mixtures with water
present a slip hazard. Use extra care in cleaning up spill
areas to prevent injury.

Spill Clean Up

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Wear skin, eye, and respiratory protection during cleanup.
Contain spill.
Keep out of sewers and drains.
Soak up material with absorbent and shovel into a chemical
waste container.

Disposal Method:

Discarded product is not a hazardous waste under RCRA, 40 CF
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HANDLING AND STORAGE

Handling (Personnel)

Do not take internally. Harmful if swallowed or absorbed through the skin.

Skin irritant. Avoid inhalation of vapor or spray mist and contact with eyes, skin or clothing.

Wash thoroughly after handling and before eating, drinking, or smoking.

If clothing becomes contaminated, remove and wash separate from household laundry before re-use.

Handling (Physical Aspects)

Clean spray equipment thoroughly after use.

Storage

Store in original tightly closed container and do not allow water to be introduced to this container.

Do not ship or store near food, feed, seed, or fertilizers.

Store product in a cool, dry, locked, well-ventilated area without floor drain.

Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination

Product must be stored at temperatures above 5 C.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation.

Personal Protective Equipment

If needed, use MSHA-NIOSH approved respirator for organic vapors.

PROTECTIVE CLOTHING:

When mixing/loading this product, wear a long-sleeved shirt, long trousers, goggles or a face shield, chemical-resistant gloves, a hat, and rubber boots.

OTHER PROTECTIVE EQUIPMENT:

Eyewash station and safety shower in work area.

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

Exposure Guidelines

Exposure Limits

SURE-MIX

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established

Exposure Guideline Comments

TLV or suggested control value:

No ACGIH TLV or OSHA PEL is assigned to this mixture. Control of exposure to below the PEL for the ingredients (See components section) may not be sufficient. Minimise exposure in accordance with good hygiene practice.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Form	: Liquid.
pH	: 5-7
Specific Gravity	: 0.9 (approx.)
Color	: Pale yellow
Solubility in water	: Dispersible
% volatile by volume	: 4 (approx.)

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal conditions.

Incompatibility with Other Materials

Oxidizing agents

Decomposition

Combustion product:

Carbon dioxide, carbon monoxide
nitrogen oxides, ammonia
sulfur oxides

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Hydrocarbon Solvent
Oral LD50: > 24,000 mg/kg in rats

Animal testing indicates that the Hydrocarbon Solvent is an eye irritant, a mild skin irritant but not a skin sensitizer.

Single exposure to ingestion to high doses of Hydrocarbon Solvent caused diarrhea. Repeated exposure caused decreased growth rate.

Single and repeated exposure by inhalation to high doses of Hydrocarbon Solvent caused inflammation of the lungs, histopathological changes of the lungs, and a form of pneumonia. Effects were only detected at or above levels well in excess of 100 ppm.

No adequate animal data are available to define the carcinogenic potential, developmental toxicity or reproductive effects of the Hydrocarbon Solvent.

Hydrocarbon Solvent did not produce genetic damage in bacterial cell cultures.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:
No information is available.

DISPOSAL CONSIDERATIONS

Waste Disposal

Empty container retains product residue. Observe all hazard precautions. Do not distribute, make available, furnish or reuse empty container except for storage and shipment of original product. Remove all product residue from container and puncture or otherwise destroy empty container before disposal.

For information on the disposal of unused, unwanted, product and the cleanup of spills, contact the Provincial Regulatory Agency or the Manufacturer.

(DISPOSAL CONSIDERATIONS - Continued)

Container Disposal

Triple-rinse the emptied container thoroughly and add the rinsing to the spray mixture in the tank.

Follow provincial instructions for any required additional cleaning of the container prior to its disposal.

Make the empty unsuitable for further use.

Dispose of the container in accordance with provincial requirements.

Do not contaminate domestic or irrigation water, lakes, streams, or ponds by the cleaning of equipment or the disposal of waste.

TRANSPORTATION INFORMATION

Shipping Information

Not Regulated by DOT/IMO/IATA

Shipping Information -- Canada

This material is Not Regulated.

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : Listed.

Canadian Regulations

Regulated under the Pest Control Products Act--WHMIS Exempt

Registration No. 25467 Pest Control Products Act

OTHER INFORMATION

References

Information contained in the Material Safety Data Sheet was obtained from I.C.I. Americas Inc.- MSDS ID: 805479, with following disclaimer:

The information herein is given in good faith but no warranty, expressed or implied, is made.

(Continued)

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS

----- Crop Protection E.I. du Pont Canada Company
Box 2200, Streetsville
Mississauga, Ontario L5M 2H3
(905) 821-3300.

End of MSDS

GROUP 3 FUNGICIDE

TILT® 250E

FUNGICIDE

COMMERCIAL

Emulsifiable Concentrate for disease control or suppression in Peaches, Nectarines, Plums, Sweet Cherries, Sour Cherries, Apricots, Highbush and Lowbush Blueberries, Saskatoon Berries, Cranberries, Caneberries, Rutabagas, Asparagus, Sugar Beets, Western Red Cedar, Kentucky Bluegrass Grown for Seed, Strawberries and Garden Beets.

Broad-spectrum disease control or suppression in Wheat, Barley, Oats, Canola, Corn, Legume Vegetables including Soybeans and for the suppression of Septoria Leaf Mottle on Canaryseed.

FOR SALE FOR USE ON TIMOTHY HAY IN THE PRAIRIE PROVINCES ONLY.

ACTIVE INGREDIENT:

Propiconazole..... 250 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING**POISON****DANGER: EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

REGISTRATION NO.: **19346**
PEST CONTROL PRODUCTS ACT

NET CONTENTS: **1 L to 1000 L**

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3
Telephone: 1-877-964-3682

Label

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IF POISONING IS SUSPECTED, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

IF SWALLOWED, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

There is no specific antidote for this product. Apply symptomatic therapy. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia.

PRECAUTIONS

KEEP OUT OF THE REACH OF CHILDREN. Severely irritating to the eye. Causes skin irritation. **DO NOT** get in eyes or on skin. Harmful if inhaled. Avoid breathing spray mist or vapours. This product may cause skin sensitization reactions in certain individuals.

Wear coveralls over long-sleeved shirt and long pants, chemical resistant gloves, socks and chemical resistant footwear during mixing, loading, application, clean up and repair. Gloves are not required during application within a closed cab or cockpit. Wear a protective face shield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used. **DO NOT** eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes. After work, change clothing and wash entire body thoroughly. Wash contaminated working

clothes separately from other laundry before reuse.

DO NOT contaminate food or feed.

DO NOT allow entry into treated area for 12 hours following application (12 hr REI). See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

Apply to agricultural crops only when there is low risk of drift to areas of human habitation or activity such as houses, cottages, schools and recreational areas. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target terrestrial plants. This pesticide is toxic to fish. DO NOT spray any body of water by direct application, drift or by cleaning and rinsing spray equipment. This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. DO NOT contaminate these systems through direct application, disposal of waste or cleaning of equipment.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland.

STORAGE

To prevent contamination store this product away from food or feed.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

CONTAINER DISPOSAL OR REFILLING:**For recyclable containers:**

DO NOT reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Dispose of the rinsings in accordance with provincial requirements.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For refillable containers:

DO NOT reuse this container for any other purpose. For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product.

For returnable containers:

DO NOT reuse this container for any other purpose. This empty container may be returned to the point of purchase (distributor/dealer) for disposal.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

TILT® is a trademark of a Syngenta Group Company.

GROUP	3	FUNGICIDE
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TILT® 250E

FUNGICIDE

COMMERCIAL

Emulsifiable Concentrate for disease control or suppression in Peaches, Nectarines, Plums, Sweet Cherries, Sour Cherries, Apricots, Highbush and Lowbush Blueberries, Saskatoon Berries, Cranberries, Caneberries, Rutabagas, Asparagus, Sugar Beets, Western Red Cedar, Kentucky Bluegrass Grown for Seed, Strawberries and Garden Beets.

Broad-spectrum disease control or suppression in Wheat, Barley, Oats, Canola, Corn, Legume Vegetables including Soybeans and for the suppression of Septoria Leaf Mottle on Canaryseed.

FOR SALE FOR USE ON TIMOTHY HAY IN THE PRAIRIE PROVINCES ONLY.

ACTIVE INGREDIENT:

Propiconazole..... 250 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING



POISON
DANGER: EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

REGISTRATION NO.: **19346**
PEST CONTROL PRODUCTS ACT

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3
Telephone: 1-877-964-3682

Pamphlet

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IF POISONING IS SUSPECTED, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

IF SWALLOWED, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES, hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

There is no specific antidote for this product. Apply symptomatic therapy. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia.

PRECAUTIONS

KEEP OUT OF THE REACH OF CHILDREN. Severely irritating to the eye. Causes skin irritation. **DO NOT** get in eyes or on skin. Harmful if inhaled. Avoid breathing spray mist or vapours. This product may cause skin sensitization reactions in certain individuals.

Wear coveralls over long-sleeved shirt and long pants, chemical resistant gloves, socks and chemical resistant footwear during mixing, loading, application, clean up and repair. Gloves are not required during application within a closed cab or cockpit. Wear a protective face shield when handling the concentrated product. The wearing of neoprene gloves by pilots when entering the aircraft is essential. Mechanical flagging devices must be used. **DO NOT** eat, drink or smoke during work; wash hands and face thoroughly before doing so. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes. After work, change clothing and wash entire body thoroughly. Wash contaminated working

clothes separately from other laundry before reuse.

DO NOT contaminate food or feed.

DO NOT allow entry into treated area for 12 hours following application (12 hr REI). See the **DIRECTIONS FOR USE** section for crop specific restricted entry intervals.

Apply to agricultural crops only when there is low risk of drift to areas of human habitation or activity such as houses, cottages, schools and recreational areas. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

If this pest control product is to be used on a commodity that may be exported to other countries in the world and you require information on acceptable residue levels in these countries, please contact Syngenta Canada Inc. at 1-87-SYNGENTA / 1-877-964-3682.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target terrestrial plants. This pesticide is toxic to fish. DO NOT spray any body of water by direct application, drift or by cleaning and rinsing spray equipment. This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. DO NOT contaminate these systems through direct application, disposal of waste or cleaning of equipment.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application sites such as hedgerows and woodland.

STORAGE

To prevent contamination store this product away from food or feed.

DISPOSAL OF UNUSED, UNWANTED PRODUCT

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For refillable containers:

DO NOT reuse this container for any other purpose. For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product.

For returnable containers:

DO NOT reuse this container for any other purpose. This empty container may be returned to the point of purchase (distributor/dealer) for disposal.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

DIRECTIONS FOR USE

DO NOT use in greenhouses.

A restricted entry interval (REI) of 1 day is required for workers hand-harvesting and detasseling treated corn.

A restricted entry interval (REI) of 5 days is required for workers hand-harvesting and pruning highbush blueberries.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

PRODUCT INFORMATION

TILT[®] 250E Fungicide is a broad spectrum systemic fungicide for control or suppression of a wide range of diseases on certain crops. TILT 250E Fungicide will protect the crop from yield and quality losses due to disease. TILT 250E Fungicide may be used in conjunction with higher seeding rates, higher fertilizer inputs, plant growth regulators and other fungicides as required.

(See "NOTE" under PRECAUTIONS)

Diseases Controlled:

CROP	DISEASES CONTROLLED OR SUPPRESSED
Barley, Spring	Net Blotch; Spot Blotch; Scald; Powdery Mildew; Septoria Leaf Spot; Leaf Rust; Stem Rust
Canary Seed	Septoria Leaf Mottle
Canola	Blackleg
Corn	Rusts; Northern Corn Leaf Blight; Southern Corn Leaf Blight; Helminthosporium Leaf Spot; Eye Spot; Grey Leaf Spot
Legume Vegetables including Soybeans	Rust (<i>Phakopsora</i> spp.); Cercospora Leaf Spot (<i>Cercospora</i> spp.); Powdery mildew (<i>Microsphaera</i> spp., <i>Erysiphe</i> spp.)
Oats	Septoria Leaf Blotch; Crown Rust
Soybeans grown for seed	Frogeye Leaf Spot (<i>Cercospora</i> spp.), Aerial Web Blight (<i>Rhizoctonia solani</i>)
Timothy ¹ :	Purple eyespot (<i>Cladosporium phlei</i>)
Wheat, Spring and Winter (including Hard Red, Durum, Canada Prairie, Soft White)	Septoria Leaf Spot; Septoria Glume Blotch; Powdery Mildew; Leaf and Stem Rust; Tan Spot; Stripe Rust
Cranberries	Cottonball (<i>Monilinia oxycocci</i>)
Kentucky Bluegrass Grown for Seed	Powdery Mildew
Lowbush Blueberries	Monilinia Blight (Mummyberry)
Highbush Blueberries	Mummyberry (<i>Monilinia vaccinii-corymbosi</i>)
Rutabagas	Powdery Mildew and Blackleg (<i>Leptosphaeria maculans</i>)*
Saskatoon Berry	Entomosporium Leaf and Berry Spot and Saskatoon Juniper Rust
Stone Fruit (Apricots, Nectarines, Peaches, Plums, Sweet and Sour Cherries)	Brown Rot, Blossom Blight and Fruit Brown Rot, Cherry Leaf Spot (<i>Blumeriella jaapii</i> – sweet and sour cherries)
Plums and Sour Cherries	Black Knot (<i>Apiosporina morbosa</i>)*
Western Red Cedar	Keithia Foliar Blight
Asparagus	Rusts (<i>Puccinia asparagi</i>)
Sugar beets	Cercospora leaf spot (<i>Cercospora beticola</i>) and Powdery mildew (<i>Erysiphe polgoni</i>)
Sugar beets	Leaf spot and Powdery mildew
Caneberries	Yellow Rust
Strawberries	Common leaf spot (<i>Mycosphaerella fragariae</i>)
Garden Beets	Cercospora leaf spot

¹FOR SALE FOR USE ON TIMOTHY HAY IN THE PRAIRIE PROVINCES ONLY.

*Suppression only

Factors Affecting TILT 250E Fungicide Performance:

TILT 250E Fungicide should be applied as a preventative disease control measure. Established diseases are more difficult to control and may have already reduced crop vigour.

If rainfall occurs within one hour of application, reapplication is necessary.

ROTATIONAL CROP RESTRICTIONS

Please see the following table for the crop rotational restrictions:

Rotational Crops	Planting Time From Last Application of Propiconazole-containing Products
All crops with Propiconazole registered uses	0 days
All other crops Intended for Food and Feed	105 days

Field Sprayer Application:

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

Airblast application:

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

Aerial Application:

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotor span. High humidity and low temperatures (10 - 20°C) allow for a better deposition of spray droplets.

Sprayer and Application Information:

The performance of this product depends on correct application. Follow the guidelines given below for optimal application of TILT 250E Fungicide.

Sprayer Information:

	FIELD SPRAYER APPLICATION	AERIAL APPLICATION
Spray Volume:	minimum 200 L water/ha	40 - 50 L water/ha
Nozzle Type:	110° drift reducing flat fan or air induction	ASABE medium rated
Droplet Size:	Medium Spray (300 microns VMD)	Medium Spray (300 microns VMD)
Nozzle Angle:	90° (straight down)	90° (straight down)
Boom Height:	40 - 50 cm above the crop canopy	2 - 3 m above the crop canopy

Field Sprayer Application - Mixing and Spraying Instructions

- 1) Spray equipment should be thoroughly flushed with clean water before mixing TILT 250E Fungicide.
- 2) Fill spray tank 1/2 full with clean water. Engage gentle agitation.
- 3) Add the required amount of TILT 250E Fungicide and agitate thoroughly.
- 4) Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tankmix partner.
- 5) Complete filling the spray tank with water, maintaining agitation during mixing and spraying operations.
- 6) Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Aerial Application - Mixing and Spraying Instructions

- 1) Spray equipment should be thoroughly flushed with clean water before mixing TILT 250E Fungicide.
- 2) Fill premix tank 1/2 full with clean water. Engage gentle agitation.
- 3) Add the required amount of TILT 250E Fungicide and agitate thoroughly.
- 4) Continue filling the tank with water until the tank is 9/10 full and, if applicable, add the required amount of tankmix partner.
- 5) Complete filling the premix tank with water.
- 6) Maintain gentle agitation during mixing.
- 7) Transfer the premix contents into the aircraft spray tank.
- 8) Maintain sufficient agitation during the mixing and spraying operation to ensure TILT 250E Fungicide remains in suspension.
- 9) Use nozzle screens no finer than 50 mesh. Keep by-pass line on or near the bottom of the tank to minimize foaming.

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label. Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for a specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

AERIAL APPLICATION USE PRECAUTIONS:

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift; therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as a shelter-belt) or aquatic habitat.

AERIAL APPLICATION OPERATOR PRECAUTIONS:

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted. It is desirable that the pilot have communication capabilities at each treatment site at the time of application. The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the label recommendations on the ground application section. All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial habitat
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer*	Beans, peas, soybeans, chickpeas, corn, wheat, oats, canary seed, canola, barley, rye, triticale, rutabagas, cranberries, strawberries, asparagus, Kentucky bluegrass, Western cedar, sugar beets, garden beets		1	0	1	1	1
Airblast	Cherries	Early growth stage	5	0	10	3	10
		Late growth stage	2	0	4	2	4
	Blueberries, apricots, nectarines, peaches, plums, Saskatoon berries, blackberries, loganberries, raspberries, other berries	Early growth stage	4	0	5	2	5
		Late growth stage	2	0	3	1	3

Method of application	Crop		Buffer Zones (metres) Required for the Protection of:				
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial habitat
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Aerial	Beans, corn, oats, wheat, barley, triticale (seed prod.), blueberries, Kentucky blue grass (seed prod.), sugar beets	Fixed wing	1	0	3	1	20
		Rotary wing	1	0	1	1	20

*For field sprayer application, buffer zones can be reduced with the use of drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

For tank mixes, consult the labels of tank mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

PRODUCT SPECIFIC PRECAUTIONS:

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-87-SYNGENTA (1-877-964-3682) or obtain technical advice from the distributor or your provincial agricultural representative.









Fertilizer - Mixing and Spraying Instructions









If desired, small amounts of nitrogen may be applied with TILT 250E Fungicide. The appropriate amount of urea can be dissolved in water and added to the spray tank before adding TILT 250E Fungicide. The rate of actual nitrogen must not exceed 10 kg/ha.

CAUTION: Excessive nitrogen concentrations may injure the crop.

NOTE: DO NOT add nitrogen when tank-mixing TILT 250E Fungicide with a herbicide.

**WHEAT, BARLEY, OATS
CEREAL GROWTH STAGES***

							
3 leaves unfolded 13	Main shoot and tiller 21	Main shoot and 4 tillers 24	Leaf sheath begins to lignify 28	Pseudo stem erection 30	1st node detectable 31	2nd node detectable 32	Flag leaf just visible 37

							
Ligule of last leaf visible 39	Boots swollen 45	Ear just visible 51	Ear 1/2 emerged 55	Ear fully emerged 59	Flowering over at base of ear 69	Flowering over kernel watery ripe 71	Grain hard 91

WHEAT, BARLEY, OATS	
<u>INSTRUCTIONS FOR USE:</u> Apply TILT 250E Fungicide at the very early stages of disease development. This could occur anytime during tillering, through stem elongation, up to flowering. TILT 250E Fungicide lasts about three weeks in the plant. If conditions favourable to disease continue after this length of time, another application will be necessary to maintain control.	
CROP/DISEASES	<u>WHEAT: Septoria Leaf Spot, Tan Spot</u> <u>SPRING BARLEY: Net Blotch</u>
RATE/HA	250 - 500 mL
EARLY Application	At G.S. 12-23 (as early as the two leaf stage). For early season disease suppression, use the lower rate for suppression under normal field conditions. Use the higher rate for control if there is a history of high disease pressures in the field and/or field conditions favour disease development.
LATER Application	At the first sign of disease (G.S. 29-37) or before head is half emerged (G.S. 49-55). Apply only the high rate on any application from G.S. 29-55.
CROP/DISEASES	<u>WHEAT: Septoria Leaf Spot and Glume Blotch, Powdery Mildew, Leaf and Stem Rust, Tan Spot, Stripe Rust</u> <u>SPRING BARLEY: Net Blotch, Spot Blotch, Scald, Powdery Mildew, Septoria Leaf Spot, Leaf and Stem Rust</u> <u>OATS: Septoria Leaf Blotch, Crown Rust</u>
RATE/HA	500 mL
Specific Use Restrictions: DO NOT make more than two applications of 500 mL each per season to grain and straw and one application of 250 mL to forage and hay. DO NOT harvest or feed forage or hay within 7 days of last application. DO NOT apply TILT 250E after G.S 71. Applications may be made no closer than a 14 day interval.	

HERBICIDE TANK-MIXING - WHEAT & BARLEY:

TILT 250E Fungicide can be tank-mixed with ONLY ONE of these herbicides:

2,4-D Amine MCPA Amine
Buctril® M Pardner®
Mextrol® 450 Approve®

HORIZON® 240EC Herbicide (Wheat Only)

AXIAL® 100EC Herbicide (Spring Wheat and Spring Barley Only) (FOR USE ONLY IN THE PRAIRIE AND INTERIOR OF BRITISH COLUMBIA)

BROADBAND® Herbicide (Spring Wheat (excluding durum) and Barley) (FOR USE IN THE PRAIRIE PROVINCES AND INTERIOR OF BRITISH COLUMBIA ONLY)

Tank-mixing Precautions:

1. DO NOT tank-mix TILT 250E Fungicide with herbicides for application onto Oats.
2. Weeds and crops must be at the correct stage of growth as specified in both the TILT 250E Fungicide label and the tank mix partner label.
3. 2,4-D and MCPA formulations may be applied either by ground application or aerial application; tank-mixtures of TILT 250E Fungicide and Buctril M, Mextrol 450, Approve, Pardner, or AXIAL 100EC Herbicide can only be applied by ground application.
4. For fields treated with AXIAL 100EC Herbicide, no crop may be seeded until the following year. There are no crop rotation limitations the year following application of AXIAL 100EC Herbicide.

5. Tank mixing with the herbicide AXIAL 100EC will slightly decrease TILT 250E efficacy.
6. Consult the label of the herbicide partner for a list of weeds controlled, directions for use and precautions.
7. When tank mixing, adhere to the most restrictive label limitations and precautions.
8. Compatibility should always be confirmed by premixing small proportional quantities of water, TILT 250E Fungicide, and the tank-mix partner in advance.

HERBICIDE TANK-MIXING – WHEAT ONLY:

FOR USE ONLY IN THE PRAIRIE AND INTERIOR OF BRITISH COLUMBIA.

TILT 250E Fungicide can be tank-mixed with HORIZON 240EC Herbicide for disease and grassy weed control.

Tank-mixing Precautions:

- 1) DO NOT apply using aerial application equipment.
- 2) Consult the label of HORIZON 240EC Herbicide for a list of weeds controlled, directions for use and precautions.
- 3) Apply prior to emergence of the 4th tiller (herbicide timing).

TIMOTHY - FOR SALE FOR USE IN THE PRAIRIE PROVINCES ONLY

INSTRUCTIONS FOR USE:

Apply TILT 250E at the very early stages of disease. If conditions favourable to disease continue after this length of time, another application will be necessary to maintain control. DO NOT APPLY USING AERIAL APPLICATION EQUIPMENT.

LAST APPLICATION MUST BE MADE PRIOR TO 14 DAYS BEFORE HARVEST (14 day PHI).

DISEASE	Purple eyespot
RATE/HA	500 mL
EARLY Application	At the first sign of disease, usually at the beginning of flowering (G.S. 59-61).
LATER Application	Full flowering (G.S. 65-73).
Minimum Interval between Applications	14 days
Maximal Seasonal Application Rate	2 applications at 500 mL/ha (1.0 L/ha in a season).

CANOLA				
INSTRUCTIONS FOR USE:				
TILT 250E Fungicide will control blackleg and enhance yield potential during the early stages of canola growth. The disease may reappear later in the season, but with minimal effect on yield. LAST APPLICATION MUST BE MADE PRIOR TO 60 DAYS BEFORE HARVEST (60 day PHI).				
DISEASES	RATE/HA	REMARKS/TIMING		
Blackleg	500 mL	Apply during the rosette stage: between 2 nd true leaf and bolting.		
		Seedling	Rosette	Bud (Bolted)
		Stage 1	Stage 2	Stage 3

TANK-MIXING – SEED CORN, FIELD CORN and SWEET CORN:

TILT 250E Fungicide can be tank-mixed with ONLY ONE of the following partners:

MATADOR® 120EC Insecticide
WARRIOR® Insecticide
Ripcord®

Tank-mixing Precautions:

1. DO NOT APPLY THE TANK MIX WITH WARRIOR INSECTICIDE BY AIR.
2. The tank mix of TILT 250E Fungicide + MATADOR120EC Insecticide or TILT 250E Fungicide + Ripcord can be applied by air and ground. Use 40 L of water per hectare when applying by air.
3. Insects and crops must be at the correct stage as specified on the TILT 250E Fungicide as well as MATADOR 120EC, WARRIOR Insecticide and Ripcord (PCP 15738) labels. Follow the directions for use and precautions on all labels.
4. DO NOT apply within 14 days of harvest (14 day PHI) when using these tank-mixes on field and sweet corn.
5. Compatibility should always be confirmed by premixing small proportional quantities of water, TILT 250E Fungicide, and the tank-mix partner in advance.

TANK MIXES

SEED CORN	
DISEASES	Rusts
RATE/HA TILT 250E Fungicide alone	500 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR Insecticide or 83 mL WARRIOR Insecticide or 175 mL Ripcord
REMARKS	Apply 500 mL/ha of TILT 250E Fungicide when rust pustules first appear. Under severe disease pressure, make a second application 14 days after. Under severe disease pressure, make a third application 14 days after. DO NOT apply the tank mix with WARRIOR Insecticide by air.
DISEASES	Northern Corn Leaf Blight Southern Corn Leaf Blight Helminthosporium Leaf Spot
RATE/HA TILT 250E Fungicide alone	250 - 500 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR Insecticide or 83 mL WARRIOR Insecticide or 175 mL Ripcord
REMARKS	Apply 250 - 500 mL/ha of TILT 250E Fungicide when disease first appears. Use the 250 mL rate if disease pressure is low. DO NOT apply the tank mix with WARRIOR Insecticide by air.
DISEASES	Eye Spot Grey Leaf Spot
RATE/HA TILT 250E Fungicide alone	500 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR Insecticide or 83 mL WARRIOR Insecticide or 175 mL Ripcord
REMARKS	Apply 500 mL of TILT 250E Fungicide per hectare when disease first appears. DO NOT apply the tank mix with WARRIOR Insecticide by air.

FIELD CORN and SWEET CORN	
DISEASES	Rusts
RATE/HA TILT 250E Fungicide alone	500 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR Insecticide or 83 mL WARRIOR Insecticide or 175 mL Ripcord
REMARKS	Apply 500 mL/ha of TILT 250E Fungicide when rust pustules first appear. Under severe disease pressure, make a second application 14 days after. DO NOT apply the tank mix with WARRIOR Insecticide by air.
DISEASES	Northern Corn Leaf Blight Southern Corn Leaf Blight Helminthosporium Leaf Spot
RATE/HA TILT 250E Fungicide alone	250 - 500 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR Insecticide or 83 mL WARRIOR Insecticide or 175 mL Ripcord
REMARKS	Apply 250 - 500 mL/ha of TILT 250E Fungicide when disease first appears. Use the 250 mL rate if disease pressure is low. DO NOT apply the tank mix with WARRIOR Insecticide by air.
DISEASES	Eye Spot Grey Leaf Spot
RATE/HA TILT 250E Fungicide alone	500 mL
RATE/HA Tank Mix partner	+ 83 mL MATADOR Insecticide or 83 mL WARRIOR Insecticide or 175 mL Ripcord
REMARKS	Apply 500 mL of TILT 250E Fungicide per hectare when disease first appears. DO NOT apply the tank mix with WARRIOR Insecticide by air.

LEGUME VEGETABLES (Crop Group 6) INCLUDING SOYBEANS

Soybeans

Edible-podded legume vegetables - Any succulent cultivar of edible podded bean (*Phaseolus* spp.) and any succulent cultivar of edible-podded pea (*Pisum* spp.): Bean (*Phaseolus* spp.) (includes runner bean, snap bean, wax bean); bean (*Vigna* spp.) (includes asparagus bean, Chinese longbean, moth bean, yardlong bean); jackbean; pea (*Pisum* spp.) (includes dwarf pea, edible-podded pea, snow pea, sugar snap pea); pigeon pea; soybean (immature seed); and sword bean.

Succulent shelled pea and bean - Any succulent shelled cultivar of bean (*Phaseolus* spp.) and garden pea (*Pisum* spp.): Bean (*Phaseolus* spp.) (includes lima bean, green bean); broad bean (succulent); bean (*Vigna* spp.) (includes black-eyed pea, cowpea, southern pea); pea (*Pisum* spp.) (includes English pea, garden pea, green pea); and pigeon pea.

Dried shelled pea and bean - Any dried cultivar of bean (*Phaseolus* spp.) and dried cultivar of pea (*Pisum* spp.): Dried cultivars of bean (*Lupinus* spp.) (includes grain lupin, sweet lupin, white lupin, and sweet white lupin); (*Vigna* spp.) (includes adzuki beans); (*Phaseolus* spp.) (includes field bean, kidney bean, lima bean (dry), navy bean, pinto bean, tepary bean, mung bean, rice bean, southern bean, urd bean); broad bean (dry); chickpea; guar; lablab bean; lentil; pea (*Pisum* spp.) (includes field pea); and pigeon pea.

LEGUME VEGETABLES (Crop Group 6) INCLUDING SOYBEANS	
DISEASE	Asian (Soybean) Rust (<i>Phakopsora pachyrhizi</i>)
CROPS	All Crop Group 6 legume vegetables listed above, and soybean
RATE/HA	500 – 756 mL
REMARKS	<p>For control of Asian Rust, apply the lower rate under conditions of low disease pressures.</p> <p>Make first application at the R2 to R3 developmental stage, or when there is 5% disease level in the field, followed by a second application 14 days after the first, if environmental conditions are favourable for disease development.</p> <p>APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF TILT 250E. DO NOT apply within 30 days of harvest (30 day PHI) for crop subgroup 6C (dry legume vegetables) and soybeans. DO NOT apply within 15 days of harvest (15 day PHI) for crop subgroup 6A (edible podded legume vegetables) and 6B (succulent shelled legume vegetables).</p>
DISEASE	Powdery Mildew (<i>Microsphaera diffusa</i> , <i>Erysiphe pisi</i> , <i>E. polygoni</i>)
CROPS	All Crop Group 6 legume vegetables listed above, and soybean
RATE/HA	500 mL
REMARKS	<p>Make first application at the R2 to R3 developmental stage, or when there is 5% disease level in the field, followed by a second application 14 days after the first, if environmental conditions are favourable for disease development.</p> <p>APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF TILT 250E. DO NOT apply within 30 days of harvest (30 day PHI) for crop subgroup 6C (dry legume vegetables) and soybeans. DO NOT apply within 15 days of harvest (15 day PHI) for crop subgroup 6A (edible podded legume vegetables) and 6B (succulent shelled legume vegetables).</p>
DISEASE	Cercospora Leaf Spot (<i>Cercospora kikuchi</i>)
CROPS	Soybean only
RATE/HA	500 mL
REMARKS	<p>Make first application at the R2 to R3 developmental stage, or when there is 5% disease level in the field, followed by a second application 14 days after the first, if environmental conditions are favourable for disease development.</p> <p>APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF TILT 250E. DO NOT apply within 30 days of harvest (30 day PHI) for crop subgroup 6C (dry legume vegetables) and soybeans. DO NOT apply within 15 days of harvest (15 day PHI) for crop subgroup 6A (edible podded legume vegetables) and 6B (succulent shelled legume vegetables).</p>

TANK MIX - TILT 250E FUNGICIDE with QUADRIS® Flowable Fungicide**LEGUME VEGETABLES (Crop Group 6) INCLUDING SOYBEANS**

DISEASE	Asian (Soybean) Rust (<i>Phakopsora pachyrhizi</i>)
CROPS	All Crop Group 6A, B, C legume vegetables listed above, and soybeans
RATE/HA	0.5 - 0.75 L/ha of TILT 250E Fungicide + 0.3 - 0.45 L/ha of QUADRIS Flowable Fungicide
REMARKS	Make the first application at the first sign of disease. Apply the high rate only under conditions of high disease pressures. A second application at 14 days interval may be needed if conditions persist. It is important to protect the developing pod of soybean and podded legume vegetables. Good spray coverage and canopy penetration are important for best results. Apply in a minimum of 45 L of water per hectare.
Restrictions: DO NOT APPLY MORE THAN 2 APPLICATIONS OF TILT 250E FUNGICIDE PER SEASON. DO NOT APPLY MORE THAN 2 APPLICATIONS OF QUADRIS FLOWABLE FUNGICIDE PER SEASON. DO NOT apply within 30 days of harvest (30 day PHI) for crop subgroup 6C (dry legume vegetables) and soybeans. DO NOT apply within 15 days of harvest (15 day PHI) for crop subgroup 6A (edible podded legume vegetables) and 6B (succulent shelled legume vegetables). DO NOT make more than one application to soybean hay and dry pea hay. DO NOT apply within 14 days of harvest (14 day PHI) of soybean hay and dry pea hay. DO NOT feed dried pea vines to livestock. Not all members of the legume vegetable group have been tested for efficacy and phytotoxicity at the recommended label rates and this tank mix should be used at the discretion of the user. The tank mix of TILT 250E Fungicide plus QUADRIS Flowable Fungicide may be applied by air or ground application equipment.	

TANK MIX - TILT 250E FUNGICIDE with MATADOR 120EC Insecticide or WARRIOR Insecticide**LEGUME VEGETABLES (Crop Group 6) INCLUDING SOYBEANS**

TILT 250E Fungicide can be tank mixed with MATADOR 120EC Insecticide or WARRIOR Insecticide for foliar disease and insect control. Apply TILT 250E Fungicide at a rate of 250 - 756 mL/ha in a tank mix with MATADOR 120EC Insecticide or WARRIOR Insecticide at a rate of 83 - 233 mL/ha for control of soybean aphid on soybean and at a rate of 83 mL/ha for the rest of the crops in Crop Group 6. Refer to both the TILT 250E Fungicide, MATADOR 120EC Insecticide, or WARRIOR Insecticide labels for diseases and insects controlled, specific application instructions, and precautions. Pests and crops must be at the correct stage as specified on the TILT 250E Fungicide, MATADOR 120EC Insecticide, or WARRIOR Insecticide labels. DO NOT apply more than 2 applications per season of this tank mix. DO NOT apply within 30 days of harvest (30 day PHI) for crop subgroup 6C (dry legume vegetables) and soybeans. DO NOT apply within 15 days of harvest (15 day PHI) for crop subgroup 6A (edible podded legume vegetables) and 6B (succulent shelled legume vegetables). DO NOT graze or harvest treated forage, straw or hay for livestock feed. Not all members of the legume vegetable group have been tested for efficacy and phytotoxicity at the recommended label rates, and should be used at the discretion of the user. This tank mix can be applied by ground application equipment only. DO NOT APPLY THE TANK MIX WITH MATADOR 120EC Insecticide or WARRIOR Insecticide BY AIR.

TANK MIXES - TILT 250E FUNGICIDE with QUADRIS Flowable Fungicide

CEREALS – CROP GROUP 15	
CROPS	Barley, Oats
DISEASE	Barley net blotch (<i>Pyrenophora teres</i>)
PRODUCT RATE (L/ha)	0.5 L/ha of TILT 250E Fungicide + 0.225 L/ha of QUADRIS Flowable Fungicide
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (BBCH Growth Stage 29-55). Good spray coverage and canopy penetration are important for best results.
CROPS	Barley, Rye
DISEASE	Barley scald (<i>Rhynchosporium secalis</i>)
PRODUCT RATE (L/ha)	0.5 L/ha of TILT 250E Fungicide + 0.225 L/ha of QUADRIS Flowable Fungicide
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (BBCH Growth Stage 29-55). Good spray coverage and canopy penetration are important for best results.
CROPS	Wheat, Barley, Rye, Oats, Triticale
DISEASE	Septoria leaf spot (<i>Septoria</i> sp.)
PRODUCT RATE (L/ha)	0.5 L/ha of TILT 250E Fungicide + 0.225 L/ha of QUADRIS Flowable Fungicide
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (BBCH Growth Stage 29-55). Good spray coverage and canopy penetration are important for best results.
CROPS	Wheat, Barley, Rye, Triticale
DISEASE	Tan spot (<i>Pyrenophora tritici-repentis</i>)
PRODUCT RATE (L/ha)	0.5 L/ha of TILT 250E Fungicide + 0.225 L/ha of QUADRIS Flowable Fungicide
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (BBCH Growth Stage 29-55). Good spray coverage and canopy penetration are important for best results.
CROPS	Barley
DISEASE	Barley leaf rust (<i>Puccinia hordei</i>)
PRODUCT RATE (L/ha)	0.5 L/ha of TILT 250E Fungicide + 0.225 L/ha of QUADRIS Flowable Fungicide
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (BBCH Growth Stage 29-55). Good spray coverage and canopy penetration are important for best results.
CROPS	Winter Wheat, Spring Wheat, Barley
DISEASE	Stripe rust (<i>Puccinia striiformis</i>)
PRODUCT RATE (L/ha)	0.4 - 0.5 L/ha of TILT 250E Fungicide + 0.2 - 0.3 L/ha of QUADRIS Flowable Fungicide
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (BBCH Growth Stage 29-55). Good spray coverage and canopy penetration are important for best results.

CEREALS – CROP GROUP 15	
CROPS	Winter Wheat, Spring Wheat
DISEASE	Wheat leaf rust (<i>Puccinia triticina</i>)
PRODUCT RATE (L/ha)	0.4 - 0.5 L/ha of TILT 250E Fungicide + 0.2 - 0.3 L/ha of QUADRIS Flowable Fungicide
APPLICATION TIMING	Apply once between stem elongation and half-head emergence (BBCH Growth Stage 29-55). Good spray coverage and canopy penetration are important for best results.
<p>Specific Use Restrictions: DO NOT make more than one application per season of this tank mixture. An additional application of TILT 250E Fungicide can be made, if required. Refer to the TILT 250E Fungicide label for details of the rate and timing. A total of two applications of TILT 250E Fungicide should be applied per season either in a tank mix with QUADRIS Flowable Fungicide or alone. DO NOT apply within 45 days of harvest (45 day PHI) for grain and straw. DO NOT harvest wheat for forage. DO NOT graze or feed livestock treated forage or cut green crop for hay or silage. The tank mix of QUADRIS Flowable Fungicide and TILT 250E Fungicide may be applied with ground or air equipment.</p> <p>GROUND APPLICATION: Apply specified rates in a minimum of 100 L of water per hectare.</p> <p>AERIAL APPLICATION: Apply specified rates in a minimum of 45 L of water per hectare.</p>	

TANK MIX - TILT 250E FUNGICIDE with QUADRIS Flowable Fungicide

CORN	
CROPS	Field Corn, Sweet Corn (including Seed Production), Popcorn (including Seed Production)
DISEASE	Rust (<i>Puccinia sorghi</i>) Northern Corn Leaf Blight (<i>Setosphaeria turcicum</i>) Southern Corn Leaf Blight (<i>Cochliobolus heterostrophus</i>) Eye Spot (<i>Aureobasidium zeae</i>) Grey Leaf spot (<i>Cercospora zeae-maydis</i>)
PRODUCT RATE (L/ha)	0.5 L/ha of TILT 250E Fungicide + 0.225 - 0.3 L/ha of QUADRIS Flowable Fungicide
APPLICATION TIMING	Make first application at the first sign of disease, followed by a second application 14 days after the first, if environmental conditions are favourable for disease development. Good spray coverage and canopy penetration are important for best results. Apply in a minimum of 45 L of water per hectare. Use the low rate of QUADRIS under low to moderate disease pressure. Use the high rate of QUADRIS only under conditions of severe disease pressure.
<p>Specific Use Restrictions: A maximum of two applications of QUADRIS Flowable Fungicide and a maximum of two applications of TILT 250E Fungicide should be applied per season either as a tank mix or as products applied alone. DO NOT apply to field corn and field corn grown for seed after brown silk. DO NOT apply within 30 days (30 day PHI) of harvest for forage. DO NOT apply to sweet corn within 14 days of harvest (14 day PHI).</p> <p>Not all of these cereal crops have been tested for efficacy and phytotoxicity at the recommended label rates and the tank mix of QUADRIS Flowable Fungicide and TILT 250E Fungicide should be used at the discretion of the user. The tank mix of QUADRIS Flowable Fungicide and TILT 250E Fungicide may be applied with ground or air equipment.</p> <p>GROUND APPLICATION: Apply specified rates in a minimum of 100 L of water per hectare.</p> <p>AERIAL APPLICATION: Apply specified rates in a minimum of 45 L of water per hectare.</p>	

RUTABAGAS	
DISEASE	Powdery Mildew, Blackleg (<i>Leptosphaeria maculans</i>)- suppression only
RATE/HA	400 mL
REMARKS	Make two applications per season; the first 50 days after planting and the second 20 days later. Apply to vegetative foliage. Use 200 L of water per hectare. LAST APPLICATION MUST BE MADE PRIOR TO 21 DAYS BEFORE HARVEST (21 day PHI). Do not graze livestock on treated crop.

WESTERN RED CEDAR	
DISEASE	Keithia Foliar Blight
RATE/HA	500 mL
REMARKS	Apply, using ground application equipment, every four weeks. Make a maximum of 6 applications per year. Apply in a volume of 1000 L of water per hectare. Do not graze livestock on treated crop.

HIGHBUSH BLUEBERRY	
DISEASE	Mummyberry (<i>Monilinia vaccinii-corymbosi</i>)
RATE/HA	500 mL
REMARKS	Apply first application at or near flower bud swelling; make a second application at leaf bud swelling. Apply by ground only, making no more than two applications per year. In BC only, apply by ground, a third application at pink bloom and a fourth application 7 to 10 days later at early bloom, making no more than 4 applications per year. Use a minimum of 200 L of water per hectare. LAST APPLICATION MUST BE MADE PRIOR TO 60 DAYS BEFORE HARVEST (60 day PHI). Do not graze livestock on treated crop.

LOWBUSH BLUEBERRY	
DISEASE	Monilinia Blight
RATE/HA	500 mL
REMARKS	Apply first application when flower bud scales first appear and make a second application 10 days later. Use ground application or aerial application equipment, making no more than two applications per year. Use a minimum of 200 L of water per hectare if applying by ground equipment; use 40-50 L of water per hectare if applying by air. LAST APPLICATION MUST BE MADE PRIOR TO 60 DAYS BEFORE HARVEST (60 day PHI). Do not graze livestock on treated crop.

CRANBERRY	
DISEASE	Cottonball (<i>Monilinia oxycocci</i>)
RATE/HA	500 mL
REMARKS	Apply the first application at leaf bud break. Make a second application 10 -14 days later, a third application at early bloom, and a fourth application 10 - 14 days after the third application. Make no more than four applications per year. LAST APPLICATION MUST BE MADE PRIOR TO 45 DAYS BEFORE HARVEST (45 day PHI). Do not graze livestock on treated crop.

SASKATOON BERRY	
DISEASE	Entomosporium Leaf and Berry Spot and Saskatoon Juniper Rust
RATE/HA	500 mL
REMARKS	As a foliar spray, apply up to three applications per season. The first application to occur at “white tip”, the second application at “petal fall”, and the third application at “green fruit”. Use a minimum of 200 L of water per hectare by ground, applying to runoff. LAST APPLICATION MUST BE MADE PRIOR TO 38 DAYS BEFORE HARVEST (38 day PHI). Do not graze livestock on treated crop.

PEACHES, NECTARINES, PLUMS, SWEET & SOUR CHERRIES, APRICOTS	
DISEASE	Brown Rot, Blossom Blight
RATE/HA	500 mL
REMARKS	Apply 500 mL of TILT 250E in 500 L of water per hectare. Make 1st application at early bloom with a 2nd application at 50 - 75% bloom. If disease conditions persist, make a 3rd application at petal fall. Do not graze livestock on treated crop.
DISEASE	Fruit Brown Rot
RATE/HA	500 mL
REMARKS	Apply no more than 2 applications in the 3 weeks prior to harvest. Apply 500 mL of product in 500 L of water per hectare. Do not graze livestock on treated crop.
DISEASE	Suppression of Black Knot (Plums and Sour Cherries ONLY)
RATE/HA	500 mL
REMARKS	Apply 500 mL of TILT 250E in a minimum of 500 L of water per hectare by ground. Make 1st application at early bloom with 2nd application at 50 - 75% bloom. If disease conditions persist, make 3rd application at petal fall. Do not graze livestock on treated crop.
<p>DO NOT APPLY WITHIN 3 DAYS OF HARVEST (3 day PHI). DO NOT REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION (3 day REI). IF REQUIRED, INDIVIDUALS MAY REENTER TREATED AREAS WITHIN 3 DAYS OF APPLICATION FOR SHORT TERM TASKS WHICH DO NOT REQUIRE HAND LABOUR IF AT LEAST 4 HOURS HAS PASSED SINCE APPLICATION AND PROVIDED LONG PANTS, LONG SLEEVED SHIRTS, AND CHEMICAL RESISTANT GLOVES ARE WORN.</p> <p>FOR SOUR CHERRIES:</p> <p>a) It is recommended that no more than 2 consecutive applications of TILT 250E be made before switching to another fungicide with a different mode of action according to disease management practices.</p> <p>b) Apply a MAXIMUM of 5 APPLICATIONS PER SEASON of TILT 250E.</p>	

KENTUCKY BLUEGRASS for SEED PRODUCTION	
DISEASE	Powdery Mildew
RATE/HA	500 mL
REMARKS	Apply as a foliar spray. Make no more than 2 applications per crop year with the first application at pre-heading and the second at 50 - 100% heading. Apply in 200 - 300 L/ha of water by ground or 40 - 50 L/ha of water by air. Do not graze livestock on treated crop.

ASPARAGUS	
DISEASE	Rust (<i>Puccinia asparagi</i>)
RATE/HA	250 mL
REMARKS	Apply TILT 250E to asparagus ferns in Ontario and Quebec only. Once harvest is complete, make the first application of TILT 250E as soon as fern growth begins, followed by applications at 14 - 21 day intervals. For new, non-harvested plantings, apply TILT 250E when first sign of rust is visible, followed by applications at 14 - 21 day intervals. Apply by ground only, making no more than three applications per year. Use a minimum of 370 L of water per hectare. LAST APPLICATION MUST BE MADE PRIOR TO 8 MONTHS BEFORE HARVEST (8 month PHI). Do not graze livestock on treated crop.

SUGAR BEETS	
INSTRUCTIONS FOR USE: Begin application at first sign of disease. A second application can be made 10 to 14 days later. LAST APPLICATION MUST BE MADE PRIOR TO 21 DAYS BEFORE HARVEST (21 day PHI).	
DISEASE	Cercospora leaf spot (<i>Cercospora beticola</i>) and Powdery mildew (<i>Erysiphe polygoni</i>)
RATE/HA	500 mL
EARLY Application	At the first sign of disease
LATER Application	A second application can be made 10 to 14 days later
Minimum Interval between Applications	10-14 days
Maximal Seasonal Application Rate	2 applications at 500 mL/ha (1.0 L/ha in a season).
Application: Tilt is most effective when applied and allowed to dry before a rainfall. For best results, sufficient water volume should be used to provide thorough coverage. Tilt may be applied by ground or air.	

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than Syngenta Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. Syngenta Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Syngenta Canada Inc. harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

SOYBEANS GROWN FOR SEED (Minor Use)

DISEASES	Frogeye Leaf Spot (<i>Cercospora</i> spp.) Aerial Web Blight (<i>Rhizoctonia solani</i>)
RATE/HA	500 - 760 mL
REMARKS	Apply using ground application equipment only, when disease first appears. Under severe disease pressure, make a second application 14 days after the first application. DO NOT harvest soybeans within 30 days of the last application (30 day PHI). For use only on soybeans grown for seed. Harvested soybean seed should not be used for human food or animal feed.

ANNUAL CANARY GRASS (Minor Use)

DISEASE	Septoria Leaf Mottle
RATE/HA	500 mL
REMARKS	For the suppression of Septoria leaf mottle. Make one application at emergence of flag leaf. Ground application only. Apply in 200 L water/ha. Annual canarygrass seeds can be harvested for human consumption. Annual canarygrass grown for human consumption is not to be cut for feed or grazed.

CANARY SEED (Minor Use)

DISEASE	Septoria Leaf Mottle
RATE/HA	500 mL
REMARKS	For the suppression of Septoria leaf mottle. Make one application at emergence of flag leaf. Ground application only. Apply in 200 L water/ha.

DRY EDIBLE BEANS (Minor Use)

DISEASE	Rust
RATE/HA	500 mL
REMARKS	Apply 500 mL of TILT 250E in minimum of 200 L water/ha by ground application or in 40 - 50 L water/ha by aerial application at the first detection of disease in the field and a second application 14 to 21 days later. APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF TILT 250E TO DRY EDIBLE BEANS. DO NOT APPLY WITHIN 28 DAYS OF HARVEST (28 day PHI).

SWEET AND SOUR CHERRIES (Minor Use)

DISEASE	Cherry Leaf Spot (<i>Blumeriella jaapii</i>)
RATE/HA	500 mL
REMARKS	Maximum of three applications per season. Ground application by airblast sprayer. Retreatment interval 7 - 10 days. DO NOT apply within 3 days of harvest (3 day PHI). It is recommended that no more than 2 consecutive applications of TILT be made before switching to another fungicide with a different mode of action according to disease management practices. Do not graze livestock on treated crop.

CANEBERRIES (Crop Group 13A; cultivars and/or varieties of red and black raspberry, loganberry, and blackberry) (Minor Use)

DISEASE	Yellow Rust
RATE/HA	500 mL
REMARKS	Apply 500 mL product per hectare in 500 L water by ground application at first detection of disease in the field and then 14 days later. Apply a maximum of two applications per season. DO NOT apply within 30 days of harvest (30 day PHI). Do not graze livestock on treated crop.

STRAWBERRIES (Minor Use)

DISEASE	Common Leaf Spot (<i>Mycosphaerella fragariae</i>)
RATE/HA	500 mL
REMARKS	<p>Apply 500 mL of TILT 250E per hectare by ground in enough water to ensure thorough coverage. Make first application when disease levels are no more than 5%. Apply at 10 day intervals for control of leaf spot.</p> <p>It is recommended that no more than 2 consecutive applications of TILT 250E be made before switching to another fungicide with a different mode of action, according to disease management practices.</p> <p>APPLY A MAXIMUM OF 4 APPLICATIONS PER SEASON OF TILT 250E TO STRAWBERRIES. DO NOT APPLY WITHIN 1 DAY OF HARVEST (1 day PHI). Do not graze livestock on treated crop.</p>

GARDEN BEETS (Minor Use)

DISEASE	Cercospora leaf spot (<i>Cercospora beticola</i>)
RATE/HA	500 mL
REMARKS	<p>Apply 500 mL of TILT 250E per hectare by ground in a minimum of 200 L/ha. Begin applications when conditions are favourable for disease development and prior to disease symptom expression. Apply at 10-14 day intervals for control of cercospora leaf spot.</p> <p>It is recommended that no more than 2 consecutive applications of TILT 250E be made before switching to another fungicide with a different mode of action according to disease management practices.</p> <p>APPLY A MAXIMUM OF 2 APPLICATIONS PER SEASON OF TILT 250E TO GARDEN BEETS. DO NOT APPLY WITHIN 14 DAYS OF HARVEST (14-day PHI).</p>

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that TILT 250E Fungicide contains a Group 3 fungicide. Any fungal population may contain individuals naturally resistant to TILT 250E Fungicide and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay fungicide resistance:

Where possible, rotate the use of TILT 250E Fungicide or other Group 3 fungicides with different groups that control the same pathogens.

Use tank mixtures with fungicide/bactericides from a different group that is effective on the target pathogen when such use is permitted.

Avoid application of more than the maximum number listed in the label and consecutive sprays of TILT 250E Fungicide or other fungicides in the same group in a season. Use tank mixtures with fungicides from a different group when such use is permitted.

Fungicide/bactericide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.

Where possible, make use of predictive disease models to effectively time fungicide/bactericide applications.

Monitor treated fungal/bacterial populations for resistance development. Notify Syngenta Canada if reduced sensitivity of the pathogen to TILT 250E Fungicide is suspected.

If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different site of action, if available.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.

For further information or to report suspected resistance, contact company representatives at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

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TILT 250 EC

Version 4 - This version replaces all previous versions.

Revision Date 27.01.2011

Print Date 27.01.2011

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1 Product identifier**Product name : **TILT 250 EC**

Design code : A6097AF

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use : Fungicide

1.3 Details of the supplier of the safety data sheetCompany : Syngenta Crop Protection AG
Postfach
CH-4002 Basel
Switzerland

Telephone : +41 61 323 11 11

Telefax : +41 61 323 12 12

E-mail address : safetydatasheetcoordination@syngenta.com**1.4 Emergency telephone number****Emergency tele-
phone number** : +44 1484 538444**SECTION 2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture**

Classification according to Regulation (EU) 1272/2008

Flammable liquids	Category 3	H226
Skin irritation	Category 2	H315
Eye irritation	Category 2	H319
Aspiration hazard	Category 1	H304
Specific target organ toxicity - single exposure	Category 3	H336
Chronic aquatic toxicity	Category 2	H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn, Harmful

N, Dangerous for the environment

R36/38: Irritating to eyes and skin.

R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R65: Harmful: may cause lung damage if swallowed.

R67: Vapours may cause drowsiness and dizziness.

TILT 250 EC

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2.2 Label elements

Labelling: Regulation (EC) No. 1272/2008

Hazard pictograms



Signal word	:	Danger
Hazard statements	:	H226 Flammable liquid and vapour. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H411 Toxic to aquatic life with long lasting effects.
Precautionary statements	:	P102 Keep out of reach of children. P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. P331 Do NOT induce vomiting. P501 Dispose of contents/ container to an approved waste disposal plant.
Supplemental information	:	Contains propiconazole. May produce an allergic reaction. EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

Hazardous components which must be listed on the label:

Labelling: EU Directives 67/548/EEC or 1999/45/EC

Symbol(s)



Harmful


 Dangerous
for the envi-
ronment

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R-phrase(s)	:	R36/38 R51/53 R65 R67	Irritating to eyes and skin. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Harmful: may cause lung damage if swallowed. Vapours may cause drowsiness and dizziness.
S-phrase(s)	:	S 2 S13 S20/21 S35 S36/37 S46 S57 S62	Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs. When using do not eat, drink or smoke. This material and its container must be disposed of in a safe way. Wear suitable protective clothing and gloves. If swallowed, seek medical advice immediately and show this container or label. Use appropriate container to avoid environmental contamination. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.
Special labelling of certain mixtures	:	To avoid risks to man and the environment, comply with the instructions for use. Contains propiconazole. May produce an allergic reaction.	

2.3 Other hazards

None known.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration
solvent naphtha (petroleum), heavy arom.	64742-94-5 265-198-5	Xn, N R51/53 R65 R66 R67	Asp. Tox.1; H304 STOT SE3; H336 Aquatic Chronic2; H411	55 - 65 % W/W
propiconazole	60207-90-1 262-104-4	Xn, N R22 R43 R50/53	Acute Tox.4; H302 Skin Sens.1; H317 Aquatic Acute1; H400 Aquatic Chronic1; H410	25.1 % W/W
poly(oxy-1,2- ethanediyl), alpha-9- octadecenyl- omega-hydroxy- ,(Z)-	9004-98-2	Xn R22 R41	Acute Tox.2; H302 Eye Dam.1; H318	1 - 5 % W/W
2-methylpropan- 1-ol	78-83-1 201-148-0	Xi R10 R37/38 R41 R67	Flam. Liq.3; H226 STOT SE3; H335 Skin Irrit.2; H315 Eye Dam.1; H318 STOT SE3; H336	1 - 5 % W/W
benzenesulfonic acid, tetrapropy- lene-, calcium salt	11117-11-6 234-360-7	Xi R36/38	Eye Irrit.2; H319 Skin Irrit.2; H319	1 - 5 % W/W

Substances for which there are Community workplace exposure limits.

For the full text of the R-phrases mentioned in this Section, see Section 16.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice : Have the product container, label or Material Safety Data Sheet with you when calling the Syngenta emergency number, a poison control center or physician, or going for treatment.

Inhalation : Move the victim to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Keep patient warm and at rest.
Call a physician or poison control centre immediately.

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- Skin contact : Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a physician.
Wash contaminated clothing before re-use.
- Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Remove contact lenses.
Immediate medical attention is required.
- Ingestion : If swallowed, seek medical advice immediately and show this container or label.
Do not induce vomiting: contains petroleum distillates and/or aromatic solvents.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Aspiration may cause pulmonary oedema and pneumonitis.

4.3 Indication of any immediate medical attention and special treatment needed

- Medical advice : There is no specific antidote available.
Treat symptomatically.
Do not induce vomiting: contains petroleum distillates and/or aromatic solvents.

SECTION 5. FIRE-FIGHTING MEASURES**5.1 Extinguishing media**

Extinguishing media - small fires
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Extinguishing media - large fires
Alcohol-resistant foam

Do not use a solid water stream as it may scatter and spread fire.

5.2 Special hazards arising from the substance or mixture

As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10).
Exposure to decomposition products may be a hazard to health.
Flash back possible over considerable distance.

5.3 Advice for firefighters

Wear full protective clothing and self-contained breathing apparatus.

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SECTION 6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Refer to protective measures listed in sections 7 and 8.
Keep people away from and upwind of spill/leak.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Remove all sources of ignition.
Pay attention to flashback.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so.
Do not flush into surface water or sanitary sewer system.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

If the product contaminates rivers and lakes or drains inform respective authorities.

6.4 Reference to other sections

Refer to protective measures listed in sections 7 and 8.
Refer to disposal considerations listed in section 13.

SECTION 7. HANDLING AND STORAGE**7.1 Precautions for safe handling**

Avoid contact with skin and eyes.
When using do not eat, drink or smoke.
Use only in an area containing flame proof equipment.
Take precautionary measures against static discharges.
For personal protection see section 8.

7.2 Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.
Keep out of the reach of children.
Keep away from combustible material.
Keep in an area equipped with sprinklers.
Keep away from food, drink and animal feedingstuffs.
No smoking.

7.3 Specific end uses

Registered Crop Protection products: For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components	Exposure limit(s)	Type of exposure limit	Source
propiconazole	8 mg/m ³	8 h TWA	SYNGENTA
solvent naphtha (petroleum), heavy arom.	100 mg/m ³	8 h TWA	SUPPLIER
2-methylpropan-1-ol	1,600 ppm 50 ppm 100 ppm 50 ppm 100 ppm 50 ppm, 231 mg/m ³	8 h TWA 15 min STEL 8 h TWA 8 h TWA 8 h TWA	NIOSH SUVA SUVA ACGIH DFG UK HSE

The following recommendations for exposure controls/personal protection are intended for the manufacture, formulation and packaging of the product.

8.2 Exposure controls

- Engineering measures : Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.
The extent of these protection measures depends on the actual risks in use.
If airborne mists or vapors are generated, use local exhaust ventilation controls.
Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit.
Where necessary, seek additional occupational hygiene advice.
- Protective measures : The use of technical measures should always have priority over the use of personal protective equipment.
When selecting personal protective equipment, seek appropriate professional advice.
Personal protective equipment should be certified to appropriate standards.
- Respiratory protection : A combination gas, vapor and particulate respirator may be necessary until effective technical measures are installed.
Protection provided by air-purifying respirators is limited.
Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

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- Hand protection : Chemical resistant gloves should be used.
Gloves should be certified to an appropriate standard.
Gloves should have a minimum breakthrough time that is appropriate to the duration of exposure.
The breakthrough time of gloves varies according to the thickness, material and manufacturer.
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Suitable material
Nitrile rubber
- Skin and body protection : Assess the exposure and select chemical resistant clothing based on the potential for contact and the permeation / penetration characteristics of the clothing material.
Wash with soap and water after removing protective clothing.
Decontaminate clothing before re-use, or use disposable equipment (suits, aprons, sleeves, boots, etc.)
Wear as appropriate:
impervious protective suit

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	: liquid
Form	: liquid
Colour	: light yellow to dark yellow
Odour	: no data available
Odour Threshold	: no data available
pH	: 4 - 8 at 1 % w/v
Melting point/range	: no data available
Boiling point/boiling range	: > 170 °C
Flash point	: 60 °C at 770 mmHg Pensky-Martens c.c.
Evaporation rate	: no data available
Flammability (solid, gas)	: no data available
Lower explosion limit	: no data available
Upper explosion limit	: no data available
Vapour pressure	: no data available
Relative vapour density	: no data available
Density	: 0.984 g/cm ³ at 20 °C
Solubility in other solvents	: no data available
Partition coefficient: n-octanol/water	: no data available
Autoignition temperature	: no data available
Thermal decomposition	: no data available
Viscosity, dynamic	: 5.0 mPa.s at 20 °C : 3.0 mPa.s at 40 °C
Viscosity, kinematic	: 4.9 mm ² /s at 20 °C : 2.9 mm ² /s at 40 °C
Explosive properties	: Not explosive
Oxidizing properties	: not oxidizing

9.2 Other information

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Miscibility : Miscible
Surface tension : 30.9 mN/m at 25 °C

SECTION 10. STABILITY AND REACTIVITY**10.1 Reactivity**

No information available.

10.2 Chemical stability

No information available.

10.3 Possibility of hazardous reactions

None known.
Hazardous polymerisation does not occur.

10.4 Conditions to avoid

No information available.

10.5 Incompatible materials

No information available.

10.6 Hazardous decomposition products

Combustion or thermal decomposition will evolve toxic and irritant vapors

SECTION 11. TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects**

Acute oral toxicity : LD50 male rat, > 3,000 mg/kg
: LD50 female rat, > 2,000 - < 3,000 mg/kg

Acute inhalation toxicity : LC50 rat, > 1 mg/l , 4 h

Acute dermal toxicity : LD50 rat, > 4,000 mg/kg

Skin corrosion/irritation : rabbit: irritating

Serious eye damage/eye irritation : rabbit: irritating

Respiratory or skin sensitization : guinea pig: Not a skin sensitizer in animal tests.

Germ cell mutagenicity
propiconazole : Did not show mutagenic effects in animal experiments.
2-methylpropan-1-ol : Did not show mutagenic effects in animal experiments.

Carcinogenicity
propiconazole : Did not show carcinogenic effects in animal experiments.
2-methylpropan-1-ol : Did not show carcinogenic effects in animal experiments.

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Reproductive toxicity

- propiconazole : Did not show reproductive toxicity effects in animal experiments.
2-methylpropan-1-ol : Did not show reproductive toxicity effects in animal experiments.

STOT - single exposure : May cause drowsiness or dizziness.

STOT - repeated exposure

- propiconazole : No adverse effect has been observed in chronic toxicity tests.
2-methylpropan-1-ol : No adverse effect has been observed in chronic toxicity tests.

SECTION 12. ECOLOGICAL INFORMATION**12.1 Toxicity**

- Toxicity to fish : LC50 *Cyprinus carpio* (Carp), 11.0 mg/l , 96 h
: LC50 *Lepomis macrochirus* (Bluegill sunfish), 6.7 mg/l , 96 h
: LC50 *Oncorhynchus mykiss* (rainbow trout), 5.7 mg/l , 96 h
- Toxicity to aquatic invertebrates : EC50 *Daphnia magna* (Water flea), 6.9 mg/l , 48 h
- Toxicity to aquatic plants : ErC50 *Pseudokirchneriella subcapitata* (green algae), 17 mg/l , 72 h

12.2 Persistence and degradability

Stability in water

- propiconazole : Degradation half life: 28 - 64 d
Propiconazole is stable in water.

Stability in soil

- propiconazole : Degradation half life: 66 - 170 d
Not persistent in soil.

12.3 Bioaccumulative potential

- propiconazole : Low to medium mobility in soil.

12.4 Mobility in soil

- propiconazole : Low to medium mobility in soil.

12.5 Results of PBT and vPvB assessment

- propiconazole : This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6 Other adverse effects

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None known.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

- Product : Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.
- Contaminated packaging : Empty remaining contents.
Triple rinse containers.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

Land transport (ADR/RID)

- 14.1 UN number: UN 1993
- 14.2 UN proper shipping name: FLAMMABLE LIQUID, N.O.S. (SOLVENT NAPHTHA AND PROPICONAZOLE)
- 14.3 Transport hazard class(es): 3
- 14.4 Packing group: III
- Labels: 3
- 14.5 Environmental hazards : Environmentally hazardous

Sea transport(IMDG)

- 14.1 UN number: UN 1993
- 14.2 UN proper shipping name: FLAMMABLE LIQUID, N.O.S. (SOLVENT NAPHTHA AND PROPICONAZOLE)
- 14.3 Transport hazard class(es): 3
- 14.4 Packing group: III
- Labels: 3
- 14.5 Environmental hazards : Marine pollutant

Air transport (IATA-DGR)

- 14.1 UN number: UN 1993
- 14.2 UN proper shipping name: FLAMMABLE LIQUID, N.O.S. (SOLVENT NAPHTHA AND PROPICONAZOLE)
- 14.3 Transport hazard class(es): 3
- 14.4 Packing group: III
- Labels: 3

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14.6 Special precautions for user

none

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

GHS-Labeling

Hazard pictograms



Signal word	:	Danger
Hazard statements	:	H226 Flammable liquid and vapour. H303 May be harmful if swallowed. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H411 Toxic to aquatic life with long lasting effects.
Precautionary statements	:	P102 Keep out of reach of children. P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. P331 Do NOT induce vomiting. P501 Dispose of contents/ container to an approved waste disposal plant.
Supplemental information	:	EUH401 To avoid risks to human health and the environment, comply with the instructions for use. Contains propiconazole. May produce an allergic reaction.

Hazardous components which must be listed on the label:

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15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this substance.

SECTION 16. OTHER INFORMATION**Further information**

Full text of R-phrases referred to under sections 2 and 3:

R10	Flammable.
R22	Harmful if swallowed.
R36/38	Irritating to eyes and skin.
R37/38	Irritating to respiratory system and skin.
R41	Risk of serious damage to eyes.
R43	May cause sensitization by skin contact.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65	Harmful: may cause lung damage if swallowed.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

Full text of H-Statements referred to under sections 2 and 3.

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Product names are a trademark or registered trademark of a Syngenta Group Company.



Trilex Component A Seed Treatment Fungicide

GROUP **7, 11** FUNGICIDES

A Seed Treatment Fungicide for seed and seedling protection against certain seed-borne and soil-borne diseases on labelled crops.

All seed treated with this product must be conspicuously coloured at the time of treatment. No open transfer is permitted in commercial seed treatment facilities.

SUSPENSION

AGRICULTURAL

GUARANTEE:	Penflufen	154 g/L
	Trifloxystrobin	154 g/L

Contains 1,2 benzisothiazolin-3-one at 0.05% and 5-chloro-2-methyl-4-isothiazolin-3-one at 0.0009% and 2-methyl-4-isothiazolin-3-one at 0.0003% as preservatives.

REGISTRATION NO. 30644 PEST CONTROL PRODUCTS ACT

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

PROTECT FROM FREEZING

NET CONTENTS: 0.946L - 1000L

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary AB T2C 3G3

For product information, call: 1-888-283-6847

In case of spills, poisoning, fire or other emergencies,
call: 1-800-334-7577 (24 hours a day)

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DIRECTIONS FOR USE	Pests Controlled 8
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GENERAL INFORMATION

Section 1: The Product

Trilex Component A is a seed treatment containing the fungicides penflufen and trifloxystrobin. Trilex Component A provides protection from seed, seedling and soil-borne diseases caused by *Rhizoctonia solani*, *Fusarium* spp., *Botrytis cinerea* and *Phomopsis longicolla* on labelled crops.

SAFETY AND HANDLING

Section 2: Precautions, Protective Clothing and Equipment

PRECAUTIONS:

- KEEP OUT OF REACH OF CHILDREN.
- Commercial seed treatment facilities must use closed transfer equipment only including closed mixing, loading, calibrating, and treatment equipment. No open transfer of Trilex Component A is permitted in commercial seed treatment facilities.
- Workers must wear long pants, a long-sleeved shirt and chemical-resistant gloves during mixing, loading, treating, clean-up, maintenance of seed treatment equipment, bagging, sewing or stacking of bagged treated seed, or when handling treated seed. In addition, workers must wear a suitable dust mask when bagging or sewing bags of treated seed or when transferring seed to a storage bin.
- Do not apply in a way that this product will contact workers or other persons. Only handlers (mixers, loaders and applicators) wearing personal protective equipment may be in the area being treated during application.
- Use good personal hygiene, washing hands and exposed skin with warm water and soap before eating, drinking, or smoking. No food, drink or tobacco should be allowed in areas of chemical storage or use.
- If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on the acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

Section 3: First Aid and Toxicological Information

FIRST AID:

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat patient symptomatically. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia.

Section 4: Environmental Hazards

ENVIRONMENTAL HAZARDS:

TOXIC to aquatic organisms. **DO NOT** discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other waters.

Dispose of all excess treated seed. Left over treated seed may be double-sown around the headland or buried away from water sources in accordance with local requirements. **DO NOT** leave exposed treated seed on soil surface. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water is shallow.

Section 5: Storage

To prevent contamination store this product away from food or feed. Store in a cool, dry area. Do not store in direct sunlight. Do not allow prolonged storage in temperatures that exceed 40°C or go below -10°C.

Section 6: Disposal

FOR NON-RETURNABLE CONTAINERS:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

FOR RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR RETURNABLE CONTAINERS:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

TRIPLE RINSE INSTRUCTIONS (FOR RECYCLABLE AND DISPOSABLE CONTAINERS ONLY): This container should be triple-rinsed prior to its disposal. The rinsate can be added to the seed treatment. Follow these steps for rinsing of containers:

1. Transfer Trilex Component A from the container to the seed treating equipment applicator tank.
2. Add 1/3 of the rinse water to the container and agitate the contents.
3. Transfer the rinsate to the applicator tank.
4. Rinse as above 2 more times.
5. Thoroughly mix the Trilex Component A and rinse water in the applicator tank prior to use.

CAUTION: Be sure to adjust the undiluted application rate by the same volume of water added to compensate for the dilution of the product caused by the addition of rinsate.

DISPOSAL OF UNUSED, UNWANTED PRODUCT:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Section 7: Notices

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

DIRECTIONS FOR USE

DO NOT apply this product or treated seeds directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Section 8: Pests Controlled

Trilex Component A is a seed treatment containing the fungicides penflufen and trifloxystrobin. Trilex Component A provides seed and seedling protection against a wide range of diseases caused by *Rhizoctonia solani*, *Fusarium* spp., *Botrytis cinerea* and *Phomopsis longicolla* on labelled crops.

Section 9: Recommended Uses

Trilex Component A is a seed treatment formulation for use in commercial seed treatment operations, and for on-farm treating with conventional seed treating equipment which can accurately meter and apply flowable seed treatment formulations.

This product is recommended to be diluted with water or another suitable liquid just prior to application to ensure uniform coverage on the seed during the application process. Uniform application to seed is necessary to ensure optimum performance. Allow seeds to dry before bagging, storing or seeding.

CROP	PEST	APPLICATION RATE	DIRECTIONS
Beans and Peas (Crop Group 6), excluding soybean: Adzuki Bean, Asparagus Bean, Broad Bean (Succulent or Dry), Catjang Bean, Chinese Longbean, Field Bean, Guar Bean, Jackbean, Kidney Bean, Lablab Bean, Lima Bean (Succulent or Dry), Moth Bean, (Succulent or Dry), Mung Bean, Navy Bean, Pinto Bean, Rice Bean, Runner Bean, Snap Bean, Sword Bean, Tepary Bean, Urd Bean, Wax Bean, Yardlong Bean, Blackeyed Pea (Succulent or Dry), Chickpea, Cowpea (Succulent or Dry), Crowder Pea, Dwarf Pea, Edible-Pod Pea, English Pea, Field Pea, Garden Pea, Green Pea, Pigeon Pea (Succulent or Dry), Snow Pea, Southern Pea (Succulent or Dry), Sugar Snap Pea, Grain Lupin, Sweet Lupin, White Sweet Lupin, Lentil	Seed decay / pre-emergence damping-off and post-emergence damping-off caused by <i>Rhizoctonia solani</i> and <i>Fusarium</i> spp. Seed decay / pre-emergence damping-off, post-emergence damping-off and seedling blight caused by seed-borne <i>Botrytis cinerea</i> . Seed decay / pre-emergence damping-off in soybean caused by seed-borne <i>Phomopsis longicolla</i>	Apply 25 mL per 100 kg of seed	Trilex Component A is designed for commercial or on-farm treating with conventional seed treating equipment which can accurately control application rates and provide a good distribution of the chemical onto the seed in the mixing chamber. Uniform application to seed is necessary to ensure optimum product performance.
	Suppression of seed-borne Ascochyta blight caused by <i>Ascochyta</i> spp.	Apply 25 – 32 mL per 100 kg of seed	

TANK-MIXTURES

For control of certain insect pests and/or additional diseases not on the Trilex Component A product label, Trilex Component A may be combined with certain seed treatment insecticides and fungicides. Refer to the registered label of the tank-mix partner(s) for application rates, precautions and directions for use associated with those products, and follow the most restrictive label precautions and limitations.

CROP	TANK-MIX PARTNERS
Pea (dry and field) Chickpea	Trilex Component B
Lentil	Allegiance FL
Bean (succulent, snap and dry)	Gaucho 480 FL
	Trilex Component B
	Allegiance FL

Section 10: Application Cautions

COLOURATION OF TREATED SEED: This product contains a pigment which will colour the treated seed. However, users are responsible for ensuring that the treated seed, when dried and ready for bagging, storage or seeding, has an unnatural colour. If the pigment contained in the formulation does not colour the seed adequately, additional colourant must be added to the mixture while treating the seed. Regulations pertaining to colouration of treated seed enforced under the *Seeds Act* must be strictly adhered to when using this product.

SLURRY PREPARATION:

When preparing a slurry of Trilex Component A with dilutants such as water or liquid inoculants, additional or continuous agitation or mixing may be necessary to prevent Trilex Component A from settling out. Do not store diluted slurry mixtures.

SEED TREATMENT AND INOCULANTS:

Please check with inoculant manufacturers for application and compatibility details prior to use.

Seeds treated with Trilex Component A and seed inoculants may not flow through seeding equipment at the same rate as untreated seeds. Recalibrate the seeding equipment prior to planting treated seeds. Mixing Trilex Component A with seed inoculants may increase drying time while treating and extend the processing time.

SEED QUALITY:

Lab and field studies have shown that Trilex Component A-treated seed can be stored without loss in germination or disease performance. Many large-seed legumes are prone to mechanical damage during seed handling, and a reduction in germination within a seed lot can occur should handling cause seed damage irrespective of seed treatment application. Trilex Component A-treated or untreated seed may drop in germination with age and germination drops are accelerated under adverse storage conditions or in seed with a high level of mechanical damage. Use handling equipment designed to minimize mechanical damage when moving seed. Due to seed quality and seed storage conditions beyond the control of Bayer CropScience, no claims are made to guarantee the germination of carry-over seed or propagating materials for all crop seed. Treatment of highly mechanically scarred or damaged seed, or seed known to be of low vigour and poor quality, may result in reduced germination and/or reduction of seed and seedling vigour. Treat a small quantity of seed using equipment similar to that planned for treating the total seed lot. Conduct germination tests on a small portion of seed before committing the total seed lot to a selected seed treatment.

Section 11: Use Limitations

USE RESTRICTIONS:

- Treated seed must not be used for food, feed or oil processing.
- Do not apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches, and wetlands), estuaries, or marine habitats.
- Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

LABELLING TREATED SEED:

All bags containing treated seed must be labelled or tagged as follows: “This seed has been treated with Trilex Component A, which contains penflufen and trifloxystrobin. Wear long-sleeved shirt, long pants and chemical-resistant gloves when handling treated seed. DO NOT use for feed, food or oil processing. Store away from feeds and other foodstuffs.”

ROTATIONAL CROPS:

Registered crops for Trilex Component A, as well as canola, mustard, rapeseed, soybean, alfalfa, corn and cereal grains, may be replanted at any time. For all other crops, do not plant-back within 30 days of seeding with Trilex Component A-treated seed.

Section 12: Resistance Management Recommendations

For resistance management, please note that Trilex Component A contains a Group 7 and 11 fungicide. Any fungal population may contain individuals naturally resistant to Trilex Component A and other Group 7 and 11 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of Trilex Component A or other Group 7 and 11 fungicides with different groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group when such use is permitted.
- Fungicide use should be based on an IPM program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological and other chemical control practices.
- Monitor treated fungal populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected resistance contact Bayer CropScience at 1-888-283-6847 or at www.bayercropscience.ca.

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name	PFL+TFS FS 154+154 G	U-WW
Product code (UVP)	79462069	
SDS Number	102000019578	

Relevant identified uses of the substance or mixture and uses advised against

Use	Seed treatment
Restrictions on use	See product label for restrictions.

Information on supplier

Supplier	Bayer CropScience Inc #200, 160 Quarry Park Blvd, SE Calgary, Alberta T2C 3G3 Canada
Responsible Department	Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.	
Emergency Telephone Number (24hr/ 7 days)	1-800-334-7577
Product Information Telephone Number	1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

This material is not hazardous under the criteria of Part 2 of the Hazardous Products Regulation.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Penflufen	494793-67-8	13.3
Trifloxystrobin	141517-21-7	13.3
1,2-Propanediol	57-55-6	11.6
Polyethylene-polypropylene copolymer	9003-11-6	4.0
Sodium lignosulphonate	8061-51-6	5.0

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SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms No symptoms known or expected.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Water spray, Foam, Carbon dioxide (CO₂), Dry chemical

Unsuitable None known.

Special hazards arising from the substance or mixture Hydrogen cyanide (hydrocyanic acid), Nitrogen oxides (NO_x), Hydrogen fluoride, Carbon monoxide (CO)

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

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Flash point	> 85 °C No flash point - Determination conducted up to the boiling point.
Auto-ignition temperature	480 °C / 896 °F
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. If material is accidentally spilled, do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

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Requirements for storage areas and containers

Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Penflufen	494793-67-8	1.1 mg/m ³ (TWA)		OES BCS*
Trifloxystrobin	141517-21-7	2.7 mg/m ³ (SK-SEN)		OES BCS*
1,2-Propanediol (Vapor and aerosol.)	57-55-6	155 mg/m ³ /50 ppm (TWA)	06 2015	CAD ON OEL
1,2-Propanediol (Aerosol.)	57-55-6	10 mg/m ³ (TWA)	11 2010	CAD ON OEL

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection

Chemical resistant nitrile rubber gloves

Eye protection

Safety glasses with side-shields

Skin and body protection

Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.

Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

dark blue

Physical State

Liquid

Odor

characteristic

Odour Threshold

No data available

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pH	8.0 - 9.5 at 100 % (23 °C)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	ca. 1.16 g/cm ³ at 20 °C
Evaporation rate	No data available
Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	dispersible
Minimum Ignition Energy	Not applicable
Decomposition temperature	Stable under normal conditions.
Partition coefficient: n-octanol/water	Not applicable
Flash point	> 85 °C No flash point - Determination conducted up to the boiling point.
Auto-ignition temperature	480 °C / 896 °F
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113
Other information	Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	Stable under normal conditions.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	Strong oxidizing agents, Strong acids, Strong bases Store only in the original container.
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

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SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Inhalation, Eye contact, Skin contact, Ingestion
Immediate Effects	
Eye	May cause eye irritation.
Skin	Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.
Information on toxicological effects	
Acute oral toxicity	LD50 (Rat) > 2,000 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 4.2 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Highest attainable concentration. No deaths
Acute dermal toxicity	LD50 (Rat) > 2,000 mg/kg
Skin irritation	No skin irritation (Rabbit)
Eye irritation	slight irritation (Rabbit)
Sensitisation	Non-sensitizing. (Mouse) OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment STOT Specific target organ toxicity – repeated exposure

Penflufen did not cause specific target organ toxicity in experimental animal studies.
Trifloxystrobin did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Penflufen was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Trifloxystrobin was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Penflufen caused at high dose levels an increased incidence of tumours in rats in the following organ(s): hematopoietic system, ovaries, Brain. The mechanism that triggers these tumours is not relevant to humans.

Trifloxystrobin was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

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None.

Assessment toxicity to reproduction

Penflufen did not cause reproductive toxicity in a two-generation study in rats. Trifloxystrobin caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Trifloxystrobin is related to parental toxicity.

Assessment developmental toxicity

Penflufen did not cause developmental toxicity in rats and rabbits. Trifloxystrobin caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Trifloxystrobin are related to maternal toxicity.

Further information

Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish

LC50 (Cyprinus carpio (Carp)) 0.103 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient penflufen.

LC50 (Oncorhynchus mykiss (rainbow trout)) 0.015 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient trifloxystrobin.

Toxicity to aquatic invertebrates

EC50 (Daphnia magna (Water flea)) > 4.66 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient penflufen.
No acute toxicity was observed at its limit of water solubility.

EC50 (Daphnia magna (Water flea)) 0.016 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient trifloxystrobin.

Toxicity to aquatic plants

EC50 (Raphidocelis subcapitata (freshwater green alga)) > 5.1 mg/l
Growth rate; Exposure time: 96 h
The value mentioned relates to the active ingredient penflufen.
No acute toxicity was observed at its limit of water solubility.

IC50 (Desmodesmus subspicatus (green algae)) 0.0053 mg/l
Growth rate; Exposure time: 72 h
The value mentioned relates to the active ingredient trifloxystrobin.

Biodegradability

Penflufen:
Not rapidly biodegradable
Trifloxystrobin:
Not rapidly biodegradable

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Koc	Penflufen: Koc: 280 Trifloxystrobin: Koc: 2377
Bioaccumulation	Penflufen: Bioconcentration factor (BCF) 142 Does not bioaccumulate. Trifloxystrobin: Bioconcentration factor (BCF) 431 Does not bioaccumulate.
Mobility in soil	Penflufen: Moderately mobile in soils Trifloxystrobin: Slightly mobile in soils
Additional ecological information	No other effects to be mentioned.
Environmental precautions	Do not allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Do not contaminate water, food, or feed by disposal. Dispose in accordance with all local, state/provincial and federal regulations. Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.
Contaminated packaging	Do not re-use empty containers. Triple rinse containers. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	3082
Labels	9
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PENFLUFEN, TRIFLOXYSTROBIN)

49CFR Not dangerous goods / not hazardous material

IMDG

UN number **3082**

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Class 9
Packaging group III
Marine pollutant YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(PENFLUFEN, TRIFLOXYSTROBIN SOLUTION)

IATA

UN number **3082**
Class 9
Packaging group III
Environm. Hazardous Mark YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(PENFLUFEN, TRIFLOXYSTROBIN SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Further Information Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1.
This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

1,2-Propanediol 57-55-6 MN, RI

Canadian Regulations

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Canadian Domestic Substance List

1,2-Propanediol	57-55-6
Polyethylene-polypropylene copolymer	9003-11-6
Sodium lignosulphonate	8061-51-6

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 0 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 0 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current Canadian WHMIS standard (WHMIS 2015).

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 02/22/2017

This information is provided in good faith but without express or implied warranty. The customer assumes

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all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.



GROUP	4	FUNGICIDE
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Trilex Component B

Seed Treatment Fungicide

A seed treatment for control of seedling blights and seed rots caused by *Pythium* spp. on beans, chickpeas, peas (dry and processing) and lentils.

SUSPENSION

COMMERCIAL

All seed treated with this product must be conspicuously coloured at the time of treatment.

GUARANTEE:
Metalaxyl.....317 g/L

REGISTRATION No. 30645 PEST CONTROL PRODUCTS ACT

READ THE LABEL AND BOOKLET BEFORE USING

WARNING – SKIN AND EYE IRRITANT

NET CONTENTS: 1L - 1000 L

Special Use Restrictions:

This product contains no colourant. An appropriate colourant must be added when this product is applied to seed. Trilex Component B is sold only to seed treaters who can comply with these requirements. Regulations pertaining to colouration of treated seed enforced under the *Seeds Act* must be strictly adhered when using this product.

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. S.E.
Calgary, Alberta T2C 3G3

For product information, call: 1-888-283-6847

In case of spills, poisoning, fire or other emergencies,
call: 1-800-334-7577 (24 hours a day)

PROTECT FROM FREEZING

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GENERAL INFORMATION

Section 1: The Product

Trilex Component B is a systemic fungicide seed treatment for control of seed rots and seedling blights caused by *Pythium* spp. on beans, chickpeas, peas (dry and processing) and lentils.

SAFETY AND HANDLING

Section 2: Precautions, Protective Clothing and Equipment

PRECAUTIONS:

1. KEEP OUT OF REACH OF CHILDREN.
2. Do not apply in a way that this product will contact workers or other persons, either directly or through drift.
3. Commercial seed treatment facilities: Trilex Component B is an eye irritant. Wear a long-sleeved shirt, long pants, chemical resistant gloves, socks, shoes or boots and safety goggles or a face-shield during mixing, loading and application. In addition, wear coveralls during clean-up and repair. Wear a long-sleeved shirt, long pants, gloves, socks and shoes or boots during bagging, sewing, stacking or other activities not involving direct contact with treated seed.
4. On-Farm Seed Treatment: Wear a long-sleeved shirt, long pants, chemical resistant gloves, socks and shoes or boots during mixing, loading, application and planting. Trilex Component B is an eye irritant. Wear safety goggles or a face-shield during mixing, loading, application, clean-up and repair activities or if there is potential for splashing or exposure to the eyes.
5. Always read and follow all tank mix partner's labels directions for use, restrictions and precautions.
6. Use good personal hygiene, washing hands and exposed skin before eating, drinking or smoking. No food, drink or tobacco should be allowed in areas of chemical storage or use.
7. May be harmful if swallowed or absorbed through skin. Wash exposed skin after use.
8. All bags containing treated seed for sale or use in Canada must be labelled or tagged as follows: "This seed has been treated with TRILEX COMPONENT B containing metalaxyl. Use chemical-resistant gloves when handling treated seed. Do not use for feed, food or oil processing. Store away from feeds and foodstuffs."
9. If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's Web site at www.croplife.ca.

Section 3: First Aid and Toxicological Information

FIRST AID:

IF SWALLOWED: Call a poison control centre or doctor IMMEDIATELY for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing the eye. Call a poison control centre or doctor IMMEDIATELY for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin IMMEDIATELY with plenty of water for 15-20 minutes. Call a poison control centre or doctor IMMEDIATELY for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control centre or doctor for treatment advice.

Take container, label, or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION:

This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. Treat symptomatically.

Section 4: Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed. Keep container closed. Do not store Trilex Component B in direct sunlight. Do not store Trilex Component B above 35°C or below 0°C.

Section 5: Disposal

FOR NON-RETURNABLE CONTAINERS:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

FOR RECYCLABLE CONTAINERS:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

- 1) Triple- or pressure-rinse the empty container. Add the rinsings to the mixture in the tank.
- 2) Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

FOR RETURNABLE CONTAINERS:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

FOR REFILLABLE CONTAINERS:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

TRIPLE RINSE INSTRUCTIONS (FOR RECYCLABLE AND DISPOSABLE CONTAINERS ONLY): This container should be triple-rinsed prior to its disposal. The rinsings can be added to the seed treatment provided the volume of water does not exceed the quantity indicated in the Application Rate table under the Directions For Use. Follow these steps for rinsing of containers.

1. Transfer Trilex Component B from the container to the seed treating equipment applicator tank.
2. Add 1/3 of the rinse water to the container and agitate the contents.
3. Transfer the rinsings to the applicator tank.
4. Rinse as above 2 more times. Add additional water as required to obtain desired Total Volume.
5. Thoroughly mix the Trilex Component B and rinse water in the applicator tank prior to use.

DISPOSAL OF UNUSED, UNWANTED PRODUCT:

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Section 6: Notices

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use a control product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

DIRECTIONS FOR USE

Section 7: Pests Controlled

Trilex Component B is a systemic fungicide seed treatment for control of seed rots and seedling blights caused by *Pythium* spp. on a number of different crops including:

CROP	DISEASE CONTROLLED
beans, chickpeas, peas	seed rots and seedling blights
lentils	<i>Pythium</i> seed rot

Section 8: Recommended Uses

Trilex Component B is a seed treatment formulation for use in commercial seed treatment operations and for on-farm treatment with conventional seed treating equipment which can accurately meter, mix and apply flowable seed treatment formulations. Trilex Component B should be mixed with water to form a slurry seed treatment. Use the high application rate to treat seed which is of poor quality or when planting into cold and wet soils is anticipated. Mix Trilex Component B with water as follows:

APPLICATION RATE TABLE (mL per 100 kg seed)

CROP	Trilex Component B	Water	Total Vol.
chickpeas, dry peas	16-110 mL	484-390 mL	500 mL
processing peas	32-110 mL	468-390 mL	500 mL
beans	46-110 mL	454-390 mL	500 mL
lentils	16 mL	484 mL	500 mL

The slurry should be applied as a spray into the mixing chamber of the seed treating equipment to ensure good coverage. See instructions supplied with the applicable seed treater system for information on proper application techniques.

SLURRY PREPARATION:

When preparing the slurry the following procedure should be used.

- 1) Partially fill the mixing tank with water.
- 2) Add the required quantity of Trilex Component B onto the water surface.
- 3) Allow product to disperse and then switch on agitation.

- 4) Top up with extra water to required volume and maintain agitation during use.
- 5) Add colourant last.

NOTE: A suitable seed colourant such as Pro-Ized® Liquid Seed Colorant must be added to the slurry prior to application on the seed. Follow instructions on the colourant package for mixing with the Trilex Component B slurry.

Trilex Component B treated seed may reduce seed flow in the seed drill. Recalibration of the seed drill may be required to obtain correct seeding rate before planting.

Section 9: Application Cautions

Seed Quality: Treatment of highly mechanically damaged seed, or seed of known low vigour and poor quality may result in reduced germination and/or reduction of seed and seedling vigour. If seed lot quality is unknown, conduct a germination test on a small portion of seed before committing the total seed lot to a selected chemical treatment. Due to seed quality conditions beyond the control of Bayer CropScience, no claims are made to guarantee germination of carry-over seed.

Section 10: Use Limitations

USE RESTRICTIONS:

1. Treated seed must not be used for food, feed or oil processing.
2. Do not graze or feed livestock on treated areas for four weeks after planting.
3. Treated seed may be toxic to birds and other wildlife. Clean up any spilled seed. Ensure that treated seed is properly incorporated at planting.
4. Treated seed must be labelled as follows: 'This seed has been treated with Trilex Component B seed protectant fungicide containing metalaxyl, a Group 4 Fungicide. Wear a long-sleeved shirt, long pants and chemical resistant gloves when handling treated seed. Do not use for feed, food or oil processing.'
5. All bags containing treated seed for export must be labelled or tagged as follows: "FOR EXPORT ONLY. This seed has been treated with Trilex Component B seed protectant fungicide containing metalaxyl a Group 4 Fungicide. Use chemical resistant gloves when handling treated seed. Do not use for feed, food or oil processing. Store away from feeds and foodstuffs."
6. Do not apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.
7. Do not contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Section 11: Resistance Management Recommendations

For resistance management, note that Trilex Component B contains a Group 4 fungicide. Any fungal population may contain individuals naturally resistant to Trilex Component B and other Group 4 fungicides. A gradual or total loss of efficacy may occur over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of Trilex Component B or other Group 4 fungicides with different groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group when such use is permitted.
- Fungicide use should be based on an IPM program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological and other chemical control practices.
- Monitor treated fungal populations for resistance development.
- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information and to report suspected resistance, contact Bayer CropScience representatives at 1-888-283-6847 or at www.bayercropscience.ca.

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TRILEX® COMPONENT B SEED TREATMENT FUNGICIDE

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Version 1.0 / CDN
102000027133

Revision Date: 10/13/2017
Print Date: 01/30/2019

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name TRILEX® COMPONENT B SEED TREATMENT FUNGICIDE

Product code (UVP) 84961019, 80968884

SDS Number 102000027133

PCP Registration No. 30645

Relevant identified uses of the substance or mixture and uses advised against

Use Fungicide, Seed treatment

Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada

Responsible Department Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577

Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

Eye irritation: Category 2B

Acute toxicity(Inhalation): Category 4

Labelling in accordance with Part 3 of the Hazardous Products Regulations



Signal word: Warning

Hazard statements

Causes eye irritation.

Harmful if inhaled.

Precautionary statements

Wash thoroughly after handling.

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Avoid breathing dust, mist, spray.
Use only outdoors or in a well-ventilated area.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Metalaxyl	57837-19-1	28.35

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

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SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Foam, Dry chemical, Carbon dioxide (CO₂)
Unsuitable None known.

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information Evacuate personnel to safe areas. Avoid contact with spilled product or contaminated surfaces. Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point No data available

Auto-ignition temperature No data available

Lower explosion limit No data available

Upper explosion limit No data available

Explosivity Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

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SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate exhaust ventilation.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

No known occupational limit values.

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection Chemical resistant nitrile rubber gloves

Eye protection Chemical resistant goggles must be worn.

Skin and body protection Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	light brown
Physical State	Liquid
Odor	musty
Odour Threshold	No data available
pH	5.0 - 8.0 at 100 % (23 °C)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	ca. 1.10 g/cm ³ at 20 °C
Evaporation rate	No data available
Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	dispersible
Minimum Ignition Energy	Not applicable
Decomposition temperature	Not applicable
Partition coefficient: n-octanol/water	Not applicable
Viscosity	250 - 600 mPa.s at 25 °C 160 - 300 mPa.s at 20 °C Velocity gradient 20 /s 75 - 115 mPa.s at 20 °C Velocity gradient 100 /s
Flash point	No data available
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity	
Thermal decomposition	Not applicable
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.

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Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	Strong acids, Strong bases, Oxidizing agents
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Skin contact, Eye contact, Ingestion, Inhalation
Immediate Effects	
Eye	Moderate eye irritation.
Skin	Harmful if absorbed through skin. May cause skin irritation.
Ingestion	Harmful if swallowed.
Inhalation	May be harmful if inhaled.
Information on toxicological effects	
Acute oral toxicity	LD50 (Rat) > 2,900 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 2.67 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
Acute dermal toxicity	LD50 (Rabbit) > 2,000 mg/kg
Skin irritation	No skin irritation (Rabbit)
Eye irritation	Moderate eye irritation. (Rabbit)
Sensitisation	Non-sensitizing. (Guinea pig)

Assessment STOT Specific target organ toxicity – repeated exposure

Metalaxyl did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Metalaxyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Metalaxyl was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

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None.

Assessment toxicity to reproduction

Metalaxyl did not cause reproductive toxicity in a multi-generation study in rats.

Assessment developmental toxicity

Metalaxyl did not cause developmental toxicity in rats and rabbits.

Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Lepomis macrochirus (Bluegill sunfish)) > 100 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient metalaxyl.
Biodegradability	Metalaxyl: Not rapidly biodegradable
Koc	Metalaxyl: Koc: 163
Bioaccumulation	Metalaxyl: Bioconcentration factor (BCF) < 7 Does not bioaccumulate.
Mobility in soil	Metalaxyl: Moderately mobile in soils
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.
Contaminated packaging	Follow advice on product label and/or leaflet. Do not re-use empty containers. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke.

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SECTION 14: TRANSPORT INFORMATION

According to national and international transport regulations this material is not classified as dangerous goods / hazardous material.

SECTION 15: REGULATORY INFORMATION

PCP Registration No. 30645

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

None.

Canadian Regulations

Canadian Domestic Substance List

None.

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act

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EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: New Safety Data Sheet.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 10/13/2017

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.



TRILEX EVERGOL CO-PACK

Version 1 / CDN

102000026861

Revision Date: 08/23/2018

Print Date: 01/30/2019

Identification of the product and of the company/undertaking

Trade name	TRILEX EVERGOL CO-PACK
Product code (UVP)	80522614
SDS Number	102000026861
Supplier	Bayer CropScience Inc #200, 160 Quarry Park Blvd, SE Calgary, Alberta T2C 3G3 Canada
Responsible Department	Email: SDSINFO.BCS-NA@bayer.com
Emergency Telephone Number (24hr/ 7 days)	1-800-334-7577
Product Information Telephone Number	1-888-283-6847

Composite packaging

This composite packaging consists of the following products:

		UVP	Specification	SDS
METALAXYL FS 312 G	U-US	84961019	102000027133	Link
PFL+TFS FS 154+154 G	U-WW	79462069	102000019578	Link

You will find attached the Safety Data Sheets for the single products. Please read them carefully. Safety Data Sheets already received for single products in the Composite Packaging are not being sent again. Updates to the Safety Data Sheets for the single products will be sent automatically with a subsequent shipment.

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

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TRILEX® COMPONENT B SEED TREATMENT FUNGICIDE

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Version 1.0 / CDN
102000027133

Revision Date: 10/13/2017
Print Date: 02/12/2019

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name TRILEX® COMPONENT B SEED TREATMENT FUNGICIDE

Product code (UVP) 84961019, 80968884

SDS Number 102000027133

PCP Registration No. 30645

Relevant identified uses of the substance or mixture and uses advised against

Use Fungicide, Seed treatment

Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada

Responsible Department Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577

Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

Eye irritation: Category 2B

Acute toxicity(Inhalation): Category 4

Labelling in accordance with Part 3 of the Hazardous Products Regulations



Signal word: Warning

Hazard statements

Causes eye irritation.

Harmful if inhaled.

Precautionary statements

Wash thoroughly after handling.

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TRILEX® COMPONENT B SEED TREATMENT FUNGICIDE

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Version 1.0 / CDN
102000027133

Revision Date: 10/13/2017
Print Date: 02/12/2019

Avoid breathing dust, mist, spray.
Use only outdoors or in a well-ventilated area.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Metalaxyl	57837-19-1	28.35

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

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TRILEX® COMPONENT B SEED TREATMENT FUNGICIDE

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Version 1.0 / CDN
102000027133

Revision Date: 10/13/2017
Print Date: 02/12/2019

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Foam, Dry chemical, Carbon dioxide (CO₂)
Unsuitable None known.

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information Evacuate personnel to safe areas. Avoid contact with spilled product or contaminated surfaces. Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point No data available

Auto-ignition temperature No data available

Lower explosion limit No data available

Upper explosion limit No data available

Explosivity Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

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SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate exhaust ventilation.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

No known occupational limit values.

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection Chemical resistant nitrile rubber gloves

Eye protection Chemical resistant goggles must be worn.

Skin and body protection Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

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TRILEX® COMPONENT B SEED TREATMENT FUNGICIDE

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	light brown
Physical State	Liquid
Odor	musty
Odour Threshold	No data available
pH	5.0 - 8.0 at 100 % (23 °C)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	ca. 1.10 g/cm ³ at 20 °C
Evaporation rate	No data available
Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	dispersible
Minimum Ignition Energy	Not applicable
Decomposition temperature	Not applicable
Partition coefficient: n-octanol/water	Not applicable
Viscosity	250 - 600 mPa.s at 25 °C 160 - 300 mPa.s at 20 °C Velocity gradient 20 /s 75 - 115 mPa.s at 20 °C Velocity gradient 100 /s
Flash point	No data available
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity	
Thermal decomposition	Not applicable
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.

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Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	Strong acids, Strong bases, Oxidizing agents
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Skin contact, Eye contact, Ingestion, Inhalation
Immediate Effects	
Eye	Moderate eye irritation.
Skin	Harmful if absorbed through skin. May cause skin irritation.
Ingestion	Harmful if swallowed.
Inhalation	May be harmful if inhaled.
Information on toxicological effects	
Acute oral toxicity	LD50 (Rat) > 2,900 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 2.67 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
Acute dermal toxicity	LD50 (Rabbit) > 2,000 mg/kg
Skin irritation	No skin irritation (Rabbit)
Eye irritation	Moderate eye irritation. (Rabbit)
Sensitisation	Non-sensitizing. (Guinea pig)

Assessment STOT Specific target organ toxicity – repeated exposure

Metalaxyl did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Metalaxyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Metalaxyl was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

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TRILEX® COMPONENT B SEED TREATMENT FUNGICIDE

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None.

Assessment toxicity to reproduction

Metalaxyl did not cause reproductive toxicity in a multi-generation study in rats.

Assessment developmental toxicity

Metalaxyl did not cause developmental toxicity in rats and rabbits.

Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Lepomis macrochirus (Bluegill sunfish)) > 100 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient metalaxyl.
Biodegradability	Metalaxyl: Not rapidly biodegradable
Koc	Metalaxyl: Koc: 163
Bioaccumulation	Metalaxyl: Bioconcentration factor (BCF) < 7 Does not bioaccumulate.
Mobility in soil	Metalaxyl: Moderately mobile in soils
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.
Contaminated packaging	Follow advice on product label and/or leaflet. Do not re-use empty containers. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke.

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SECTION 14: TRANSPORT INFORMATION

According to national and international transport regulations this material is not classified as dangerous goods / hazardous material.

SECTION 15: REGULATORY INFORMATION

PCP Registration No. 30645

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

None.

Canadian Regulations

Canadian Domestic Substance List

None.

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act

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EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: New Safety Data Sheet.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 10/13/2017

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

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Print Date: 02/12/2019

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name PFL+TFS FS 154+154 G U-WW
Product code (UVP) 79462069
SDS Number 102000019578

Relevant identified uses of the substance or mixture and uses advised against

Use Seed treatment
Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada
Responsible Department Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.
Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

This material is not hazardous under the criteria of Part 2 of the Hazardous Products Regulation.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Penflufen	494793-67-8	13.3
Trifloxystrobin	141517-21-7	13.3
1,2-Propanediol	57-55-6	11.6
Polyethylene-polypropylene copolymer	9003-11-6	4.0
Sodium lignosulphonate	8061-51-6	5.0

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SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms No symptoms known or expected.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Water spray, Foam, Carbon dioxide (CO₂), Dry chemical

Unsuitable None known.

Special hazards arising from the substance or mixture Hydrogen cyanide (hydrocyanic acid), Nitrogen oxides (NO_x), Hydrogen fluoride, Carbon monoxide (CO)

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

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Flash point	> 85 °C No flash point - Determination conducted up to the boiling point.
Auto-ignition temperature	480 °C / 896 °F
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice Use personal protective equipment. If material is accidentally spilled, do not allow to enter soil, waterways or waste water canal.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

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Requirements for storage areas and containers

Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Penflufen	494793-67-8	1.1 mg/m ³ (TWA)		OES BCS*
Trifloxystrobin	141517-21-7	2.7 mg/m ³ (SK-SEN)		OES BCS*
1,2-Propanediol (Vapor and aerosol.)	57-55-6	155 mg/m ³ /50 ppm (TWA)	06 2015	CAD ON OEL
1,2-Propanediol (Aerosol.)	57-55-6	10 mg/m ³ (TWA)	11 2010	CAD ON OEL

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection

Chemical resistant nitrile rubber gloves

Eye protection

Safety glasses with side-shields

Skin and body protection

Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.

Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

dark blue

Physical State

Liquid

Odor

characteristic

Odour Threshold

No data available

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pH	8.0 - 9.5 at 100 % (23 °C)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	ca. 1.16 g/cm ³ at 20 °C
Evaporation rate	No data available
Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	dispersible
Minimum Ignition Energy	Not applicable
Decomposition temperature	Stable under normal conditions.
Partition coefficient: n-octanol/water	Not applicable
Flash point	> 85 °C No flash point - Determination conducted up to the boiling point.
Auto-ignition temperature	480 °C / 896 °F
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113
Other information	Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	Stable under normal conditions.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	Strong oxidizing agents, Strong acids, Strong bases Store only in the original container.
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

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SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Inhalation, Eye contact, Skin contact, Ingestion
Immediate Effects	
Eye	May cause eye irritation.
Skin	Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.
Information on toxicological effects	
Acute oral toxicity	LD50 (Rat) > 2,000 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 4.2 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Highest attainable concentration. No deaths
Acute dermal toxicity	LD50 (Rat) > 2,000 mg/kg
Skin irritation	No skin irritation (Rabbit)
Eye irritation	slight irritation (Rabbit)
Sensitisation	Non-sensitizing. (Mouse) OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment STOT Specific target organ toxicity – repeated exposure

Penflufen did not cause specific target organ toxicity in experimental animal studies.
Trifloxystrobin did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Penflufen was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Trifloxystrobin was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Penflufen caused at high dose levels an increased incidence of tumours in rats in the following organ(s): hematopoietic system, ovaries, Brain. The mechanism that triggers these tumours is not relevant to humans.

Trifloxystrobin was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

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None.

Assessment toxicity to reproduction

Penflufen did not cause reproductive toxicity in a two-generation study in rats. Trifloxystrobin caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Trifloxystrobin is related to parental toxicity.

Assessment developmental toxicity

Penflufen did not cause developmental toxicity in rats and rabbits. Trifloxystrobin caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Trifloxystrobin are related to maternal toxicity.

Further information

Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish

LC50 (Cyprinus carpio (Carp)) 0.103 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient penflufen.
LC50 (Oncorhynchus mykiss (rainbow trout)) 0.015 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient trifloxystrobin.

Toxicity to aquatic invertebrates

EC50 (Daphnia magna (Water flea)) > 4.66 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient penflufen.
No acute toxicity was observed at its limit of water solubility.
EC50 (Daphnia magna (Water flea)) 0.016 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient trifloxystrobin.

Toxicity to aquatic plants

EC50 (Raphidocelis subcapitata (freshwater green alga)) > 5.1 mg/l
Growth rate; Exposure time: 96 h
The value mentioned relates to the active ingredient penflufen.
No acute toxicity was observed at its limit of water solubility.
IC50 (Desmodesmus subspicatus (green algae)) 0.0053 mg/l
Growth rate; Exposure time: 72 h
The value mentioned relates to the active ingredient trifloxystrobin.

Biodegradability

Penflufen:
Not rapidly biodegradable
Trifloxystrobin:
Not rapidly biodegradable

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Koc	Penflufen: Koc: 280 Trifloxystrobin: Koc: 2377
Bioaccumulation	Penflufen: Bioconcentration factor (BCF) 142 Does not bioaccumulate. Trifloxystrobin: Bioconcentration factor (BCF) 431 Does not bioaccumulate.
Mobility in soil	Penflufen: Moderately mobile in soils Trifloxystrobin: Slightly mobile in soils
Additional ecological information	No other effects to be mentioned.
Environmental precautions	Do not allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Do not contaminate water, food, or feed by disposal. Dispose in accordance with all local, state/provincial and federal regulations. Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.
Contaminated packaging	Do not re-use empty containers. Triple rinse containers. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	3082
Labels	9
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (PENFLUFEN, TRIFLOXYSTROBIN)

49CFR

Not dangerous goods / not hazardous material

IMDG

UN number	3082
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Class 9
Packaging group III
Marine pollutant YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(PENFLUFEN, TRIFLOXYSTROBIN SOLUTION)

IATA

UN number **3082**
Class 9
Packaging group III
Environm. Hazardous Mark YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(PENFLUFEN, TRIFLOXYSTROBIN SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Further Information Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1.
This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

TSCA list

None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

1,2-Propanediol 57-55-6 MN, RI

Canadian Regulations

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Canadian Domestic Substance List

1,2-Propanediol	57-55-6
Polyethylene-polypropylene copolymer	9003-11-6
Sodium lignosulphonate	8061-51-6

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 0 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 0 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current Canadian WHMIS standard (WHMIS 2015).

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 02/22/2017

This information is provided in good faith but without express or implied warranty. The customer assumes

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all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

Safety Data Sheet

Urea Ammonium Nitrate (UAN) Solution



SDS Revision Date:

02/21/2017

1. Identification

1.1. Product identifier

Product Identity

Urea Ammonium Nitrate (UAN) Solution

Alternate Names

ACL-001, UAN Solution 28%
UAN Solution 32% , Urea Ammonium Nitrate (UAN) Solution

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use

See Technical Data Sheet.

Application Method

See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name

7420 Airport Road - Unit 202
Mississauga, ON L4T 4E5

Emergency

24 hour Emergency Telephone No.

AGRICO (MISSISSAUGA) EMERGENCY ASSISTANCE
(905) 672-5700
CANUTEC 24 HOUR EMERGENCY 1-888-CAN-UTEC
(226-8832)

Customer Service:

(502)842 2633

2. Hazard(s) identification

2.1. Classification of the substance or mixture

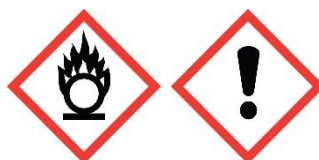
Ox. Liq. 3;H272

May intensify fire; oxidizer.

Eye Irrit. 2;H319

Causes serious eye irritation.

2.2. Label elements



Warning

H272 May intensify fire; oxidizer.

H319 Causes serious eye irritation.

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[Prevention]:

P210 Keep away from heat / sparks / open flames / hot surfaces - No smoking.

P221 Take any precaution to avoid mixing with combustibles.

P280 Wear protective gloves / eye protection / face protection.

[Response]:

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

P337+313 If eye irritation persists: Get medical advice / attention.

[Storage]:

[Disposal]:

P501 Dispose of contents / container in accordance with local / national regulations.

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the Controlled Products Regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Ammonium nitrate CAS Number: 0006484-52-2	42	Ox. Liq. 3;H272 Eye Irrit. 2;H319	[1]
Urea CAS Number: 0000057-13-6	33	Not classified	[1]

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General

In all cases of doubt, or when symptoms persist, seek medical attention.
Never give anything by mouth to an unconscious person.

Inhalation

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes

Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin

Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion

If the person is conscious, have them drink water or milk. Contact a physician immediately. Do not induce vomiting.

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4.2. Most important symptoms and effects, both acute and delayed

Overview Contact with skin or eyes may cause irritation. See section 2 for further details.
Eyes Causes serious eye irritation.

5. Fire-fighting measures

5.1. Extinguishing media

Use media needed to control surrounding fire. Water content of product prevents ignition. The product can support combustion if water evaporates.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: Combustion: oxides of nitrogen and carbon, ammonia, ammonium compounds, cyanide compounds, biuret. When the water in UAN evaporates, it leaves a residue of solid ammonium nitrate and urea; solid ammonium nitrate can explode.

Keep away from heat / sparks / open flames / hot surfaces - No smoking.

Take any precaution to avoid mixing with combustibles.

5.3. Advice for fire-fighters

Avoid welding or burning on pipes, valves, or tanks, which have contained UAN solution until they have been thoroughly washed out. Residual ammonium nitrate may explode under conditions of confinement and high temperature.

Wear self-contained breathing apparatus and protective clothing.

ERG Guide No. ---

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

EMERGENCY ACTION: Keep unnecessary people away, and isolate hazard area.

SMALL SPILLS: Stop leak, if you can do so without risk. Collect product for recovery and use as a fertilizer.

LARGE SPILLS: For release to land, contain discharge by constructing dykes or applying inert absorbent. Keep out of streams. Check for contamination of drinking water supply. Notify applicable government authority if release is reportable or could adversely affect the environment.

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7. Handling and storage

7.1. Precautions for safe handling

Handle containers carefully to prevent damage and spillage.

May be toxic to cattle (ruminants) when ingested. Practically non-toxic to aquatic life (> 103 mg/L 9 hours LC50 Fish)
See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Store in a tightly closed container. Protect from freezing. Avoid heat, flames, sparks and other sources of ignition and do not allow material to become dry. Do not use zinc or copper (brass, bronze, etc.) alloys in contact with nitrogen solution. Also, cast iron, malleable iron or ductile iron is much more susceptible to corrosion than aluminum or carbon steel. Be especially wary of plugs and fittings on storage tanks made from these materials.

Incompatible materials: Avoid contact with combustible, organic or other readily oxidizable materials. Avoid contact with strong acids and chlorates or other strong oxidizers. Avoid heat, sparks and other sources of ignition. UAN will form urea nitrate when mixed with nitric acid at low pH; urea nitrate may become unstable and/or explosive under certain conditions. Contact with alkaline materials may liberate ammonia. Corrosive to brass and copper.

See section 2 for further details. - [Storage]:

7.3. Specific end use(s)

No data available.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0000057-13-6	Urea	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	AIHA Workplace Environmental Exposure Limit (WEEL): 10mg/m3, 8-hr TWA
0006484-52-2	Ammonium nitrate	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit

8.2. Exposure controls

Respiratory

If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators.

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Eyes	Wear splash goggles, if exposed to splashing liquids.
Skin	Rubber coated gloves and suitable clothing to minimize skin contact are recommended.
Engineering Controls	Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details.

9. Physical and chemical properties

Appearance	Color may be clear, green, blue or pink. Liquid
Odor	It may have a faint to pungent ammonia odor.
Odor threshold	Not determined
pH	6.5 – 7.5
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	> 100 (°C)
Flash Point	Not Measured
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
Vapor pressure (Pa)	
Vapor Density	Not Measured
Specific Gravity	(H2)=1) 28% 1.280 32% 1.327
Solubility in Water	100%
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured
Density	@ 16°C 28% 10.67 32% 11.08 lbs/U.S. gal

9.2. Other information

No other relevant information.

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10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

No data available.

10.5. Incompatible materials

Avoid contact with combustible, organic or other readily oxidizable materials. Avoid contact with strong acids and chlorates or other strong oxidizers. Avoid heat, sparks and other sources of ignition. UAN will form urea nitrate when mixed with nitric acid at low pH; urea nitrate may become unstable and/or explosive under certain conditions. Contact with alkaline materials may liberate ammonia. Corrosive to brass and copper.

10.6. Hazardous decomposition products

Combustion: oxides of nitrogen and carbon, ammonia, ammonium compounds, cyanide compounds, biuret. When the water in UAN evaporates, it leaves a residue of solid ammonium nitrate and urea; solid ammonium nitrate can explode.

11. Toxicological information

Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Ammonium nitrate - (6484-52-2)	No data available	No data available	No data available	No data available	No data available
Urea - (57-13-6)	14,300.00, Rat - Category: NA	No data available	No data available	No data available	No data available

Carcinogen Data

CAS No.	Ingredient	Source	Value
0000057-13-6	Urea	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0006484-52-2	Ammonium nitrate	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

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Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	2	Causes serious eye irritation.
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

12. Ecological information

12.1. Toxicity

Harmful to aquatic life.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Ammonium nitrate - (6484-52-2)	100.00, Fish (Piscis)	490.00,	1,700.00 (96 hr), Selenastrum capricornutum
Urea - (57-13-6)	6,810.00, Fish	22,998.00, Daphnia magna	5,001.00 (72 hr), Algae

12.2. Persistence and degradability

When released to soil, urea will hydrolyze into ammonium in a matter of days to several weeks. When released into water, this material may biodegrade to a moderate extent. When released into water, urea is expected to evaporate significantly bioaccumulation. When released into the air, urea is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, urea is expected to have a half-life of less than 1 day.

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

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This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available.

13. Disposal considerations

13.1. Waste treatment methods

Whatever cannot be saved for recovery or recycling should be managed in appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	Not Applicable	Not Regulated	Not Regulated
14.2. UN proper shipping name	Not Regulated	Not Regulated	Not Regulated
14.3. Transport hazard class(es)	DOT Hazard Class: Not Applicable	IMDG: Not Applicable Sub Class: Not Applicable	Air Class: Not Applicable
14.4. Packing group	Not Applicable	Not Applicable	Not Applicable
14.5. Environmental hazards			
IMDG	Marine Pollutant: No;		
14.6. Special precautions for user	No further information		

15. Regulatory information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all of the information required by those regulations.

Components are DSL Listed, NDSL Listed and/or are exempt from listing.

WHMIS Classification D2B C

Safety Data Sheet

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16. Other information

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The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H272 May intensify fire; oxidizer.

H319 Causes serious eye irritation.

The information contained herein is furnished without warranty of any kind. The above information is believed to be correct but does not purport to be all inclusive and should be used only as a guide. Users should make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

End of Document

VALIDTM

DEPOSITION AID DRIFT REDUCTION AGENT ANTIFOAM-DEFOAMER

GUARANTEE:

Lecithin, emulsifiers, glycols and defoamer.....100%

CAUTION

Keep Out of Reach of Children

Net Contents: 3.785 L

SHAKE WELL BEFORE USE.

CAUTION: Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wear chemical resistant gloves.

FIRST AID

If swallowed

Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing

Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled

Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

General: **VALID** is a non-foaming and shear tolerant drift reduction agent containing suspended antifoam- defoamer. **VALID** may be used as a drift reduction adjuvant to enhance deposition, retention, and control spray droplet size of agricultural and non-crop chemicals. **VALID** improves deposition by increasing initial adhesion of droplets to the surface of hard to wet plants (reducing bounce and run-off). **VALID** will not increase viscosity of spray solution, reduce the flow rate or affect the angle of the spray nozzle. **VALID** reduces drift by producing a more uniform droplet size and a more uniform spray pattern. The degree of drift hazard varies with the type of pesticide and application conditions. Common sense and sound application technology must be followed when spraying pesticides. **VALID** will reduce, but not eliminate drift. **VALID** is compatible with most pesticides formulations including water-soluble, flowable, wettable powders and formulations containing boron. Application may be by ground or air.

Directions for Use:

VALID may be used on and has demonstrated excellent plant safety on a wide variety of crops.

General Use:

The antifoamer-defoamer is suspended in **VALID** and may separate during storage but is easily re-suspended by shaking. **VALID** should be added to the spray tank before adding pesticides to prevent foaming.

Application Rate: 125 mL per 100 Litres of spray mixture.

Environmental Hazards: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Storage: Store in a cool, dry place. Store in original container. Keep tightly closed. Do not reuse empty container. Product will become thicker at cold temperatures but effectiveness of the product will not be affected. Warm product before use.

Disposal:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE IT IS IMPOSSIBLE TO ELIMINATE ALL RISKS INHERENTLY ASSOCIATED WITH THE USE OF THIS PRODUCT. CROP INJURY, INEFFECTIVENESS, OR OTHER UNINTENDED CONSEQUENCES MAY RESULT BECAUSE OF SUCH FACTORS AS WEATHER CONDITIONS, PRESENCE OF OTHER MATERIALS, OR THE MANNER OF USE OR APPLICATION, ALL OF WHICH ARE BEYOND THE CONTROL OF LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER. IN NO CASE SHALL LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. ALL SUCH RISKS SHALL BE ASSUMED BY THE BUYER. EXCEPT AS EXPRESSLY PROVIDED HEREIN, LOVELAND PRODUCTS CANADA INC., THE MANUFACTURER OR SELLER MAKES NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD, INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE. BUYER'S OR USER'S EXCLUSIVE REMEDY, AND LOVELAND PRODUCT CANADA INC.'S, THE MANUFACTURER'S OR SELLER'S TOTAL LIABILITY, SHALL BE FOR DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT.

LOVELAND PRODUCTS CANADA INC.

789 Donnybrook Drive
Dorchester, Ontario
N0L 1G5
1-800-328-4678

**IN CASE OF EMERGENCY DUE TO A MAJOR SPILL, FIRE OR POISONING INVOLVING THIS PRODUCT
CALL DAY OR NIGHT, 1-800-561-8273**



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SUPERSEDES: 07/10/2015

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product Name VALID

Other means of identification

Product Code ADJ-0006
Document 1000219385
Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Deposition Aid. Drift Reduction Agent. Anti-foaming agent (defoamer).
Uses advised against No information available

Details of the supplier of the safety data sheet

Manufacturer Address
LOVELAND PRODUCTS CANADA, INC.
789 Donnybrook Drive
Dorchester, Ontario N0L 1G5

Emergency telephone number

Company Phone Number 1-800-328-4678
Emergency Telephone Chemtrec 1-800-424-9300
1-800-561-8273

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4 - (H302)
-----------------------	---------------------

Label elements



Signal word **WARNING**

Hazard statements H302 - Harmful if swallowed

Precautionary Statements - Prevention P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product

Precautionary Statements - Response P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 - Rinse mouth

Precautionary Statements - P501 - Dispose of contents/ container to an approved waste disposal plant



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Disposal

Hazards not otherwise classified (HNOC)

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical Name	CAS No	Weight-%	GHS Classification	Trade Secret
DIETHYLENE GLYCOL	111-46-6	10 - 30	Acute Tox. 4 (H302)	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.
OSHA Hazard Communication 29 CFR 1910.1200

4. FIRST AID MEASURES

Description of first aid measures

General advice	(Get medical attention immediately if symptoms occur.)
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician. Call a poison control center or doctor for treatment advice.
Skin contact	Take off contaminated clothing. Call a poison control center or doctor for treatment advice.
Inhalation	Remove to fresh air.
Ingestion	Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed. For a medical emergency involving this product call: 1-800-561-8273. Take container, label or product name with you when seeking medical attention.

Note to physicians Treat symptomatically.

Antidotes No data available



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SUPERSEDES: 07/10/2015

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing agent suitable for type of surrounding fire, Use CO₂, dry chemical, or foam

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective gear should be worn in fighting large fires involving chemicals. Use water spray to keep fire exposed containers cool. Keep people away. Isolate fire and deny unnecessary entry.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation, especially in confined areas.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible materials None known based on information supplied.



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SUPERSEDES: 07/10/2015

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Tight sealing safety goggles. Face protection shield.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection Dependent on job function. If vapors or dusts exceed acceptable levels, wear a MSHA/NIOSH approved air-purifying respirator with any cartridges/filters approved for pesticides. If respirators are used, a program should be in place to assure compliance with 29 CFR 1910.134, the OSHA Respiratory Protection Standard. Wear a supplied air respirator if exposure concentrations are unknown.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.



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9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Liquid
Color	No data available
Odor	Mild Bland
Odor threshold	No data available

<u>Property</u>	<u>Values (Remarks - Method)</u>
pH	5.0 - 7.0 (1% solution)
Melting point / freezing point	No data available
Boiling point	No data available
Flash point	> 100 ASTM .?
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Flammability Limit in Air	
Upper flammability limit:	No data available
Lower flammability limit:	No data available
Vapor pressure	No data available
Vapor density	No data available
Specific Gravity	0.985 - 1.005 g/ml
Water solubility	Dispersible
Solubility in other solvents	No data available
Partition coefficient	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Dynamic viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

Other Information

VOC Content (%)	No data available
Density	0.985 - 1.005kg/L

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.



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SUPERSEDES: 07/10/2015

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Extremes of temperature and direct sunlight.

Incompatible materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Acute toxicity of the formulated product:

Chemical Name	Oral LD ₅₀	Dermal LD ₅₀	Inhalation LC ₅₀
DIETHYLENE GLYCOL	= 12565 mg/kg (Rat)	= 11890 mg/kg (Rabbit)	

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.

Information on likely routes of exposure

Product Information	No data available
Inhalation	No data available.
Eye contact	No data available.
Skin contact	No data available.
Ingestion	No data available.



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SUPERSEDES: 07/10/2015

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
DIETHYLENE GLYCOL 111-46-6	-	LC50 75200 mg/L 96 h Pimephales promelas	EC50 84000 mg/L 48 h Daphnia magna

Persistence and degradability

No information available.

Bioaccumulation

No information available.

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes

Do not reuse containers for any purpose. Make the empty container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Do not contaminate water, food, or feed by storage or disposal. For disposal, the container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse the product container for any other purpose.

Contaminated packaging

Do not reuse container.

14. TRANSPORT INFORMATION

DOT

UN/ID no

Not regulated

Proper shipping name

Not regulated

U.S. Surface Freight Classification:

ADHESIVES, ADJUVANTS, SPREADERS OR STICKERS
(NMFC 4610; CLASS: 60)



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SUPERSEDES: 07/10/2015

15. REGULATORY INFORMATION

<u>NFPA</u>	Health hazards 0	Flammability 0	Instability 0	Physical and Chemical Properties -	
<u>HMIS</u>	Health hazards 0	Flammability 0	Physical hazards 0	Personal protection X	
	0 - Least	1 - Slight	2 - Moderate	3 - High	4 - Severe

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. EPA Label Information



SAFETY DATA SHEET

VALID

SDS REVISIONS: ALL SECTIONS DATE OF ISSUE: 11/27/2018

SUPERSEDES: 07/10/2015

16. OTHER INFORMATION

Prepared By Product Stewardship and Regulatory Affairs

Reviewed By Safety, Health and Environment

Issue Date 11/27/2018

Revision Date 11/27/2018

Revision Note

16 SDS sections updated

VALID is a registered trademark of Loveland Products Canada, Inc.

Disclaimer

This safety data sheet was developed from information on the constituent materials identified herein and does not relate to the use of such materials in combination with any other material or process. No warranty is expressed or implied with respect to the completeness or ongoing accuracy of the information contained in this data sheet, and LOVELAND PRODUCTS, INC. disclaims all liability for reliance on such information. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.

End of Safety Data Sheet

Container



VARRO™ Herbicide

GROUP	2	HERBICIDE
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FOR POSTEMERGENCE WEED CONTROL IN SPRING, DURUM AND WINTER WHEAT

SUSPENSION

AGRICULTURAL

ACTIVE INGREDIENT: thien carbazono-methyl 10 g/L

REGISTRATION NO. 29070 PEST CONTROL PRODUCTS ACT

WARNING - SKIN AND EYE IRRITANT

READ THE LABEL AND LEAFLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

NET CONTENTS : 1 L - Bulk

Product Information: 1-888-283-6847

www.cropscience.bayer.ca

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd S.E.
Calgary, Alberta T2C 3G3

In case of spills, poisoning or fire, telephone emergency response number 1-800-334-7577 (24 hours a day).

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

DIRECTIONS FOR USE: See the printed booklet provided with this container.

PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN. Avoid breathing vapors, or spray mist. Causes eye irritation. DO NOT get in eyes. May irritate skin. Avoid contact with skin. Wash thoroughly after handling. Remove contaminated clothing and wash clothing before reuse.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

PERSONAL PROTECTIVE EQUIPMENT (PPE): Applicators and Other handlers must wear long-sleeved shirts, long pants, and shoes plus socks. In addition, during mixing/loading, clean up and repair, workers must wear chemical-resistant gloves such as barrier laminate, or butyl rubber > 14 mils or nitrile rubber > 14 mils, and protective eyewear (safety glasses). Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS: Wash hands thoroughly with soap and water before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.cropscience.bayer.ca.

FIRST AID: Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed, call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice. **If inhaled,** move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice. **If in eyes,** hold eye open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses,

if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION: No specific antidote is available. Treat the patient symptomatically. This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia.

ENVIRONMENTAL HAZARDS: This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms and non-target terrestrial plants. Refer to DIRECTIONS FOR USE (Section 9) for additional ENVIRONMENTAL PRECAUTIONS and observe BUFFER ZONES specified.

STORAGE: Store in a cool, dry place. Do not store below freezing. Shake well before using. To prevent contamination, store this product away from food or feed. Store product in original container only and keep closed. Store away from other pesticides, feeds, seeds, fertilizers, food, or feed. Do not use or store in or around the home.

DISPOSAL:

Recyclable Container

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Returnable-Refillable Container: For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

For non-recyclable Container

1. Thoroughly rinse the emptied plastic bag, or triple-rinse the empty container, and add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the plastic bag/container prior to its disposal.
3. Make the empty plastic bag/container unsuitable for further use.
4. Dispose of the plastic bag/container in accordance with provincial requirements.

Disposal of Unused, Unwanted Product: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

TMVARRO is a trademark of Bayer.

190116

Booklet



VARRO™ Herbicide

GROUP	2	HERBICIDE
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FOR POSTEMERGENCE WEED CONTROL IN SPRING, DURUM AND WINTER WHEAT

SUSPENSION

AGRICULTURAL

ACTIVE INGREDIENT: thiencazone-methyl 10 g/L

REGISTRATION NO. 29070 PEST CONTROL PRODUCTS ACT

WARNING - SKIN AND EYE IRRITANT

READ THE LABEL AND LEAFLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

NET CONTENTS : 1 L - Bulk

Product Information: 1-888-283-6847

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Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd S.E.
Calgary, Alberta T2C 3G3

In case of spills, poisoning or fire, telephone emergency response number 1-800-334-7577 (24 hours a day).

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GENERAL INFORMATION

SECTION 1: NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

SECTION 2: THE PRODUCT

VARRO™ Herbicide is a post-emergent herbicide that provides control of certain annual grass weeds and annual broadleaf weeds in Spring Wheat (hard red spring, Canada Prairie spring, soft white spring, and extra strong or utility), Durum Wheat and Winter Wheat.

SAFETY AND HANDLING

SECTION 3: PRECAUTIONS, PROTECTIVE CLOTHING AND EQUIPMENT

PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN.

Avoid breathing vapors, or spray mist. Causes eye irritation. **DO NOT** get in eyes. May irritate skin. Avoid contact with skin. Wash thoroughly after handling. Remove contaminated clothing and wash clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE): Applicators and Other handlers must wear long-sleeved shirts, long pants, and shoes plus socks. In addition, during mixing/loading, clean up and repair, workers must wear chemical-resistant gloves such as barrier laminate, or butyl rubber > 14 mils or nitrile rubber > 14 mils, and protective eyewear (safety glasses).

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Follow manufacturer’s instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

- Wash hands thoroughly with soap and water before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.cropscience.bayer.ca.

SECTION 4: FIRST AID AND TOXICOLOGICAL INFORMATION

FIRST AID:

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed	<ul style="list-style-type: none"> • Call a poison control centre or doctor immediately for treatment advice. • Do not induce vomiting unless told to do so by a poison control centre or doctor. • Do not give any liquid to the person. • Do not give anything by mouth to an unconscious person.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15–20 minutes. • Call a poison control centre or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control centre or doctor for further treatment

	advice.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15–20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION: No specific antidote is available. Treat the patient symptomatically. This product contains a petroleum distillate. Vomiting may cause aspiration pneumonia.

SECTION 5: ENVIRONMENTAL HAZARDS AND INFORMATION

This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms and non-target terrestrial plants. Refer to DIRECTIONS FOR USE (Section 9) for additional ENVIRONMENTAL PRECAUTIONS and observe BUFFER ZONES specified.

SECTION 6: STORAGE

Store in a cool, dry place. Do not store below freezing. Shake well before using. To prevent contamination, store this product away from food or feed. Store product in original container only and keep closed. Store away from other pesticides, feeds, seeds, fertilizers, food, or feed. Do not use or store in or around the home.

SECTION 7: DISPOSAL

Recyclable Container

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Container: Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Returnable-Refillable Container: For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not use this container for any other purpose.

For non-recyclable Container

1. Thoroughly rinse the emptied plastic bag, or triple-rinse the empty container, and add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the plastic bag/container prior to its disposal.
3. Make the empty plastic bag/container unsuitable for further use.
4. Dispose of the plastic bag/container in accordance with provincial requirements.

Disposal of Unused, Unwanted Product: For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for cleanup of spills.

DIRECTIONS FOR USE

SECTION 8: CROPS AND WEEDS

8.1 CROPS AND APPLICATION TIMING

VARRO Herbicide may be applied to the following crops when at the indicated growth stages:

CROP	RECOMMENDED GROWTH STAGE	REMARKS
<p>Spring Wheat (incl. hard red spring, Canada Prairie spring, soft white spring and extra strong (utility) wheat)</p>	<p>1 to 6 leaves on main stem, plus 3 tillers but prior to jointing (presence of first node)</p>	<ul style="list-style-type: none"> • Do not apply to crop that is under stress due to abnormal environmental conditions such as frost, extreme heat, low fertility, drought, flooding, or disease and/or insect damage as crop injury may result. Under drought conditions (spring and durum wheat only): <ul style="list-style-type: none"> ○ Do not spray VARRO Herbicide if time between seeding and spraying exceeds 35 days (as drought hastens crop development) ○ Do not spray VARRO Herbicide three days prior to or following cold temperatures (3°C or lower) • Do not treat wheat underseeded to legumes. • Refer to section 9.1 for general reminders for successful operation.
<p>Durum Wheat</p>		
<p>Winter Wheat</p>	<p>Apply either in the fall or spring when the majority of plants have one leaf to full tillering, but prior to jointing (presence of first node).</p>	

8.2 APPLICATION RATE AND WEEDS CONTROLLED

Treatment with VARRO Herbicide at 0.5 L/ha applied according to label recommendations will provide control of the following weed species*:

GRASS WEEDS	RECOMMENDED STAGE
Wild oats	1 to 6 leaves, up to emergence of the 3 rd tiller
Green foxtail	
Barnyard grass	
Yellow foxtail ¹	
Persian Darnel ¹	1 to 6-leaves, up to emergence of 2 nd tiller
Volunteer canary seed	
Japanese Brome ²	1 to 6-leaf stage

BROADLEAF WEEDS	RECOMMENDED STAGE
Wild mustard	1 to 6-leaf stage
Redroot pigweed	1 to 6-leaf stage
Stinkweed	1 to 6-leaf stage
Shepherd's-purse	1 to 6-leaf stage
Hemp-nettle	1 to 6-leaf stage
Volunteer canola ³	1 to 6-leaf stage
Cleavers	1 to 6 whorls
Pale Smartweed	1 to 6-leaf stage
Wild buckwheat	1 to 6-leaf stage
Lamb's Quarters ¹	1 to 6-leaf stage
Russian Thistle ¹	1 to 6-leaf stage, up to 10 cm tall
Round-leaved mallow ¹	1 to 6-leaf stage

- 1 Suppression only
- 2 Control of spring-germinated Japanese Brome. Suppression of overwintered Japanese Brome. Best results are obtained after a pre-seed or burndown application with a glyphosate herbicide.
- 3 non ALS-tolerant

* Refer to section 8.3 for additional weed control information

- For best results, apply to emerged, young, actively growing weeds according to the weed stages listed. Research has demonstrated that optimum wheat yield is obtained when weeds are removed early.
- Under stressed conditions and/or heavy crop canopy, early application will result in improved weed control.
- Weeds growing under adverse environmental conditions such as drought will be less susceptible to VARRO Herbicide.

8.3 ADDITIVES

8.3.1 Non-ionic Surfactant (NIS) – For Use in Spring and Durum Wheat

When VARRO Herbicide is applied alone, a non-ionic surfactant (Agral 90, AgSurf or Surf 92) at 0.25% may be added for

- improved and more consistent weed control overall.
- more consistent control of wild oat in areas of heavy infestation.
- more consistent control of Japanese brome.

8.3.2 Ammonium sulphate (AMS) – For Use in Spring Wheat Only

When VARRO Herbicide is applied alone, Ammonium sulphate at 500 g/ha (99%) or 1 L/ha (49% solution) or 1.25 L/ha (40% solution) may be added for

- improved and more consistent weed control overall.
- more consistent control of wild oat in areas of heavy infestation.
- more consistent control of Japanese brome.

If using an ammonium sulphate product with a different concentration, adjust the rate accordingly.

NOTES - ADDITIVES:

Do not tank mix with any other adjuvants, chemical additives or fertilizers unless recommended on this label.

When tank mixing additives/adjuvants with VARRO Herbicide, minor crop injury may be observed. These symptoms are temporary and do not impact crop yield.

8.4 RAINFASTNESS

- Rainfall within 60 minutes of application may reduce effectiveness.

8.5 TANK MIXTURES

For control of weed species listed for VARRO Herbicide alone plus additional broadleaf weeds or grasses, VARRO Herbicide may be tank mixed with one of the following herbicides. Consult the label of the tank mix partner(s) for further instructions regarding directions for use, restrictions, precautions and additional weeds not specified on this label. Always observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

RECOMMENDED TANK-MIXTURES IN SPRING WHEAT

PRODUCTS	PRODUCT RATES [Amount/ha]
VARRO Herbicide	0.5 L
plus MCPA-ester*	up to 350 g ae/ha
VARRO Herbicide	0.5 L
plus 2,4-D-ester*	up to 350 g ae/ha

VARRO Herbicide	0.5 L
plus Buctril M	1.0 L
VARRO Herbicide	0.5 L
plus Thumper	1.0 L
VARRO Herbicide	0.5 L
plus INFINITY HERBICIDE**	0.83 L
VARRO Herbicide	0.5 L
plus Attain Herbicide Tank Mix	0.6 L/ha Attain A 1.0 L/ha Attain B
VARRO Herbicide	0.5 L
plus Curtail M*	1.5 L
VARRO Herbicide	0.5 L
plus Refine SG	30 g/ha
VARRO Herbicide	0.5 L
plus Refine SG	30 g/ha
plus MCPA-Ester*	up to 350 g ae/ha
VARRO Herbicide	0.5 L
plus Refine SG	30 g/ha
plus 2,4-D – Ester*	up to 350 g ae/ha

RECOMMENDED TANK-MIXTURES IN SPRING WHEAT (cont.'d)

PRODUCTS	PRODUCT RATES [Amount/ha]
VARRO Herbicide	0.5 L
plus Refine DF	20 g/ha
VARRO Herbicide	0.5 L
plus Refine DF	20 g/ha
plus MCPA-Ester*	up to 350 g ae/ha
VARRO Herbicide	0.5 L
plus Refine DF	20 g/ha

plus 2,4-D – Ester*	up to 350 g ae/ha
VARRO Herbicide	0.5 L
plus Frontline Herbicide Tank Mix	100 mL/ha Frontline A 0.7 L/ha Frontline B

RECOMMENDED TANK-MIXTURES IN DURUM WHEAT

PRODUCTS	PRODUCT RATES [Amount/ha]
VARRO Herbicide	0.5 L
plus MCPA-ester*	up to 350 g ae/ha
VARRO Herbicide	0.5 L
plus 2,4-D-ester*	up to 350 g ae/ha
VARRO Herbicide	0.5 L
plus INFINITY HERBICIDE**	0.83 L
VARRO Herbicide	0.5 L
plus Buctril M	1.0 L
VARRO Herbicide	0.5 L
plus Thumper	1.0 L

RECOMMENDED TANK-MIXTURES IN WINTER WHEAT

PRODUCTS	PRODUCT RATES [Amount/ha]
VARRO Herbicide	0.5 L
plus INFINITY HERBICIDE**	0.83 L
VARRO Herbicide	0.5 L
plus Thumper	1.0 L

*Refer to tank-mix partner label for weed/rate chart.

** The tank-mixture of VARRO plus INFINITY HERBICIDE provides control of round-leaved mallow from the 1 to 6-leaf stage.

RECOMMENDED TANK-MIXTURE IN SPRING, DURUM AND WINTER WHEAT

PRODUCTS	PRODUCT	WEEDS	GROWTH STAGE
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	RATES	CONTROLLED	TIMING
VARRO Herbicide + LUXXUR A Herbicide	0.5 L/ha + 15 g/ha	Weeds controlled by VARRO Herbicide alone plus Canada thistle ^{1,2} Perennial sowthistle ^{1,2} Dandelion Scentless chamomile Narrow-leaved hawk's-beard Lamb's quarter ¹ Cow cockle Round-leaved mallow	Wheat (spring and durum) may be treated from 2 to 6 leaf stage on main stem, plus 3 tillers, but prior to jointing (presence of first node). Winter wheat may be treated when the majority of plants have two leaves to full tillering, but prior to jointing (presence of first node). Weed growth stages: Canada thistle and Perennial Sowthistle ^{1,2} : up to 15 cm in height. Dandelion: up to 20 cm in diameter; Scentless chamomile: up to 10 cm in height; Narrow-leaved hawk's-beard: prior to bolting; Lamb's quarter ¹ and cow cockle: up to 10 cm in height. Round-leaved mallow: 1- to 6-leaf stage.

1. For control of Canada thistle, perennial sowthistle and lamb's quarter, the addition of an additive is required as follows:
 - a. **Spring and winter wheat:** add a non-ionic surfactant (Agral 90, AgSurf or Surf 92) at 0.25% or add ammonium sulphate at 500 g/ha (99%) or 1 L/ha (49% solution) or 1.25 L/ha (40% solution). If using an ammonium sulphate product with a different concentration, adjust the rate accordingly.
 - b. **Durum wheat:** add a non-ionic surfactant (Agral 90, AgSurf or Surf 92) at 0.25%.
2. Season long control, with some regrowth in the fall.

SECTION 9: APPLICATION INSTRUCTIONS, USE LIMITATIONS AND ENVIRONMENTAL PRECAUTIONS

9.1 GENERAL REMINDERS FOR SUCCESSFUL OPERATION AND ADDITIONAL ENVIRONMENTAL PRECAUTIONS

- Apply only once per season with ground or aerial equipment.
- Do not use VARRO Herbicide if another Group 2 grass herbicide has been previously applied in the same season, with the exception of Olympus Herbicide, where sufficient data are available to support such use.
- Do not use another Group 2 grass herbicide following an application of VARRO Herbicide in the same season.
- For best results, apply to emerged, young, actively growing weeds.
- VARRO Herbicide will have an effect on weeds that are larger than the recommended leaf stage, however the speed of activity and level of control may be reduced.
- Under cool and/or dry conditions activity may be reduced or delayed. If weeds are under stress due to abnormal environmental conditions, delay application until stress passes and after weeds have resumed active growth. Weed control may also be reduced if application is made when weeds are dust covered or in the

presence of heavy dew, fog, or mist/rain.

- Do not apply to crop that is under stress due to abnormal environmental conditions such as frost, extreme heat, low fertility, drought, flooding, or disease and/or insect damage as crop injury may result.
- Do not treat wheat underseeded to legumes.
- Follow directions under Section 8 for the correct rate and timing of application.
- Avoid overlapping; shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from over-application.

9.1.1 ADDITIONAL ENVIRONMENTAL PRECAUTIONS:

- Avoid contact with desirable plants or crops either from direct application or from spray drift as severe damage may occur.
- Do not allow this chemical to drift on to other crops, especially canola, tame oats, or other non target crops.
- Do not overspray non-target terrestrial or aquatic habitats. Do not contaminate aquatic habitats when cleaning and rinsing spray equipment or containers.
- As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.
- DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), estuarine/ marine habitats.
- The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g., sandy soil) and/or the depth to the water table is shallow. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

9.2 GROUND AND AERIAL APPLICATION

GROUND APPLICATION

- Apply in a spray volume of 46.8 - 93.5 L/ha unless otherwise specified in tank-mix partner section of this label - at 207-345 kPa (30-50 PSI) pressure to ensure proper weed coverage.
- Flat fan nozzles of 80° or 110° are recommended for optimum coverage.
- Do not use floodjet or controlled droplet application equipment or Sprafoil® equipment.
- Nozzles may be oriented 45° forward to enhance crop penetration and to give better weed coverage.
- Uniform, thorough coverage is important to obtain consistent weed control. Higher water volumes should be used under dense crop and weed canopies to ensure thorough coverage of the target weeds.
- Field sprayer application : DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE)

medium classification. Boom height must be 60 cm or less above the crop or ground.

AERIAL APPLICATION

- Apply VARRO Herbicide alone or in tank mixes (ONLY with the recommended tank mix partners that are registered for aerial use) in no less than 28 litres of water per hectare at a pressure no less than 300 kPa.
- Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.
- Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended on this label.
- Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Aerial Use Precautions

- Read and understand the entire label before opening this product. If you have questions, call Bayer at 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.
- Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by *the Federal/Provincial/Territorial Committee on Pest Management and Pesticides*.
- Do not apply to terrain where there is a potential for surface run-off to enter aquatic systems.
- Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.
- Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist).
- Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelterbelt) or aquatic habitat.
- Do not apply when wind speed is greater than 16 km/h at a flying height at the site of application. Do not apply with spray droplets smaller than ASAE medium classification.
- DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. To reduce drift caused by turbulent wingtip vortices, the nozzle distributions along the spray boom length MUST NOT exceed 65% of the wing- or rotorspan.

Aerial Operator Precautions:

- Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.
- It is desirable that the pilots have communication capabilities at each treatment site at the time of application.

- The field crew and the mixer/loaders must wear chemical resistant gloves, long-sleeved shirt and long pants, shoes plus socks and protective eyewear (safety glasses).
- All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Product Specific Precautions:

- Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-888-283-6847 or obtain technical advice from the distributor or your provincial agricultural representative.

9.3 BUFFER ZONES

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Buffer Zones (metres) Required for the Protection of:		
	Freshwater Habitat of Depths:		Terrestrial Habitat
	Less than 1 m	Greater than 1 m	
Field sprayer	1	0	1
Aerial (fixed wing)	1	0	30
Aerial (rotary wing)	1	0	30

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

9.4 ROTATIONAL CROPS

Only the following crops have been field tested to indicate they may be safely planted at the prescribed interval after an application of VARRO Herbicide. To avoid the possibility of injury to subsequent crops after an application of the recommended rate of VARRO Herbicide, follow the crops and replanting interval which appear on this label, and if tank mixing on the label of the tank mix partner, and always observe the most restrictive replanting interval. A field bioassay must be conducted the year prior to growing any other crop of interest to confirm crop safety.

CROP	REPLANTING INTERVAL
Alfalfa	10 months
Barley, spring	10 months
Canaryseed	10 months
Canola	10 months
Chickpeas	10 months
Corn, field	10 months
Dry bean	10 months
Flax, including low linolenic acid varieties	10 months

Lentils	10 months
Mustard	10 months
Oats, spring	10 months
Peas, field	10 months
Soybeans	10 months
Sunflowers	10 months
Timothy	10 months
Wheat, spring, durum and winter	10 months

**ADDITIONAL ROTATIONAL CROP RECOMMENDATIONS
– EASTERN CANADA ONLY**

CROP	REPLANTING INTERVAL
Corn, field	Immediate plant back*
Winter wheat	4 months
Potato	22 months
Sugarbeet	22 months
Tomato	22 months

* In the event that wheat crop treated with VARRO Herbicide is lost due to environmental conditions and re-seeding is required, field corn may be reseeded immediately.

**SECTION 10:
PRE-HARVEST, PRE-GRAZING/FEEDING AND RE-ENTRY INTERVALS**

- DO NOT graze the treated crops or cut for forage within 7 days or cut for hay within 30 days of application.
- DO NOT harvest spring or durum wheat for grain or straw within 60 days of application.
- DO NOT harvest winter wheat for grain or straw within 72 days of application.
- DO NOT re-enter treated fields within 12 hours of application.
- If tank mixing, always respect the maximum intervals stated on the labels of all the tank mix products.

SECTION 11: MIXING INSTRUCTIONS

VARRO Herbicide must be applied with properly calibrated and clean sprayer equipment. VARRO Herbicide is specially formulated to mix readily in water. Prior to adding VARRO Herbicide to the spray tank, ensure that the spray tank is thoroughly clean (see Section 12 “Sprayer Cleanup”).

1. Fill the spray tank $\frac{1}{4}$ to $\frac{1}{2}$ full with clean water and begin agitation or bypass.
2. Add the appropriate rate of VARRO Herbicide, as specified under Section 8, directly to the spray tank. Maintain sufficient agitation during both mixing and application.
3. Add tank mix partners, if desired.
4. Fill the spray tank with balance of water required.

5. Maintain sufficient agitation during both mixing and application of VARRO Herbicide.

VARRO Herbicide may settle if left standing without agitation. If the spray solution is allowed to stand for one hour or more, re-agitate the spray solution for a minimum of 10 minutes before application.

SECTION 12: SPRAYER CLEANUP

Before and after using VARRO Herbicide always complete a thorough cleaning of the spray tank, lines and filters. The following procedures are recommended:

1. Drain the tank completely, and then wash out tank, boom and hoses with clean water. Drain again.
2. Half fill the tank with clean water and add ammonia (i.e., 3% domestic ammonia solution) at a dilution rate of 1% (i.e., 1 litre of domestic ammonia for every 100 litres of rinsate). Complete filling of the tank with water. Agitate/recirculate and flush through boom and hoses. Leave agitation on for 10 minutes. Drain tank completely.
3. Repeat step 2.
4. Remove nozzles and screens and soak them in a 1% ammonia solution. Inspect nozzles and screens and remove visible residues.
5. Flush tank, boom, and hoses with clean water.
6. Inspect tank for visible residues. If present, repeat step 2.
7. Dispose of rinsings in accordance with provincial regulations.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

SECTION 13: RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, VARRO Herbicide is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to VARRO Herbicide and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

1. Where possible, rotate the use of VARRO Herbicide or other Group 2 herbicides with different herbicide groups that control the same weeds in a field.
2. Use tank mixtures with herbicides from a different group when such use is permitted.
3. Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
4. Monitor treated weed populations for resistance development.

5. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
6. Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
7. For further information or to report suspected resistance contact Bayer via internet at www.cropscience.bayer.ca or telephone at 1-888-283-6847.

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All other products listed are registered trademarks or trademarks of their respective companies.

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name VARRO™ HERBICIDE
Product code (UVP) 79303688
SDS Number 102000014337
PCP Registration No. 29070

Relevant identified uses of the substance or mixture and uses advised against

Use Herbicide
Restrictions on use See product label for restrictions.

Information on supplier

Supplier Bayer CropScience Inc
#200, 160 Quarry Park Blvd, SE
Calgary, Alberta T2C 3G3
Canada
Responsible Department Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.
Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577
Product Information Telephone Number 1-888-283-6847

SECTION 2: HAZARDS IDENTIFICATION

Classified in accordance with Part 2 of the Hazardous Products Regulations

Skin irritation: Category 2
Eye irritation: Category 2B

Labelling in accordance with Part 3 of the Hazardous Products Regulations



Signal word: Warning

Hazard statements

Causes skin and eye irritation.

Precautionary statements

Wash thoroughly after handling.
Wear protective gloves.

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IF ON SKIN: Wash with plenty of water/ soap.
Specific treatment (see supplemental first aid instructions on this label).
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Thiocarbazone-methyl	317815-83-1	1.0
Mefenpyr-diethyl	135590-91-9	6.0
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	60.7
Isotridecanol, ethoxylated	9043-30-5	9.8
Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	68953-96-8	3.2

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	Move out of dangerous area. When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

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Symptoms	If large amounts are ingested, the following symptoms may occur: Headache, Nausea, Dizziness, Somnolence Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Aspiration may cause pulmonary oedema and pneumonitis. Inhalation may provoke the following symptoms: Cough, Shortness of breath, Cyanosis, Fever Symptoms and hazards refer to the solvent.
Indication of any immediate medical attention and special treatment needed	
Risks	Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard.
Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Water spray, Carbon dioxide (CO ₂), Foam, Sand
Unsuitable	High volume water jet

Special hazards arising from the substance or mixture In the event of fire the following may be released:, Hydrogen chloride (HCl), Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Nitrogen oxides (NO_x), Sulphur oxides

Advice for firefighters

Special protective equipment for firefighters In the event of fire and/or explosion do not breathe fumes. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.

Keep out of smoke. Fight fire from upwind position.

Flash point	115 °C
Auto-ignition temperature	425 °C / 797 °F
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations. Keep in suitable, closed containers for disposal.

Additional advice Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.

Reference to other sections Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use only in area provided with appropriate exhaust ventilation.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in a place accessible by authorized persons only. Keep away from direct sunlight. Protect from freezing.

Advice on common storage Keep away from food, drink and animal feedingstuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Thiencarbazone-methyl	317815-83-1	10 mg/m ³ (TWA)		OES BCS*
Mefenpyr-diethyl	135590-91-9	10 mg/m ³		OES BCS*

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		(TWA)		
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene (Vapor.)	64742-94-5	200 mg/m3 (TWA)	07 2009	CAD AB OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	1,590 mg/m3/400 ppm (TWA)	07 2009	CAD AB OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene (Non-aerosol.)	64742-94-5	200 mg/m3 (TWA)	05 2013	CAD BC OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene (Non-aerosol.)	64742-94-5	200 mg/m3 (TWA)	03 2014	CAD MB OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene (Non-aerosol.)	64742-94-5	200 mg/m3 (TWA)	11 2010	CAD ON OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	525 mg/m3 (TWA)	11 2010	CAD ON OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene (Vapor.)	64742-94-5	250 mg/m3 (15 MIN ACL)	05 2009	CAD SK OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene (Vapor.)	64742-94-5	200 mg/m3 (8 HR ACL)	05 2009	CAD SK OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	500 ppm (15 MIN ACL)	05 2009	CAD SK OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	400 ppm (8 HR ACL)	05 2009	CAD SK OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	1,590 mg/m3/400 ppm (TWA)	11 2011	OEL (QUE)

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*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.
Hand protection	Chemical resistant nitrile rubber gloves
Eye protection	Chemical resistant goggles must be worn.
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks.
General protective measures	Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	brown
Physical State	Liquid
Odor	aromatic
Odour Threshold	No data available
pH	7.0 - 8.5 (10 %) (23 °C) (deionized water)
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	ca. 1.00 g/cm ³ (20 °C)
Evaporation rate	No data available
Boiling Point	No data available
Melting / Freezing Point	No data available
Water solubility	dispersible
Minimum Ignition Energy	Not applicable
Decomposition temperature	No data available
Partition coefficient: n-octanol/water	Not applicable
Viscosity	40 - 140 mPa.s (20 °C) Velocity gradient 20 /s

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	40 - 100 mPa.s (20 °C) Velocity gradient 100 /s
Flash point	115 °C
Auto-ignition temperature	425 °C / 797 °F
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not explosive 92/69/EEC, A.14 / OECD 113
Other information	Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	No data available
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	No data available
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Skin contact, Inhalation, Ingestion
Immediate Effects	
Eye	Moderate eye irritation.
Skin	Moderate skin irritation.

Information on toxicological effects

Acute oral toxicity	LD50 (female Rat) > 2,000 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 1.73 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Highest attainable concentration. No deaths
Acute dermal toxicity	LD50 (male/female combined Rat) > 2,000 mg/kg

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Skin corrosion/irritation	Irritating to skin. (Rabbit)
Serious eye damage/eye irritation	Irritating to eyes. (Rabbit)
Respiratory or skin sensitisation	Skin: Non-sensitizing. (Mouse) OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment STOT Specific target organ toxicity – repeated exposure

Thiencarbazone-methyl did not cause specific target organ toxicity in experimental animal studies.
Mefenpyr-diethyl did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Thiencarbazone-methyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Mefenpyr-diethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Thiencarbazone-methyl was not carcinogenic in a lifetime feeding study in rats. Thiencarbazone-methyl caused at high dose levels an increased incidence of tumours in mice in the following organ(s): urinary bladder. The tumours seen with Thiencarbazone-methyl were caused through the chronic irritation due to the presence of bladder stones.

Mefenpyr-diethyl was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

Solvent Naphtha (petroleum), heavy aromatic, 64742-94-5 Group A3
<1% naphthalene

NTP

None.

OSHA

None.

Assessment toxicity to reproduction

Thiencarbazone-methyl did not cause reproductive toxicity in a two-generation study in rats.
Mefenpyr-diethyl did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Thiencarbazone-methyl did not cause developmental toxicity in rats and rabbits.
Mefenpyr-diethyl caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Mefenpyr-diethyl are related to maternal toxicity.

Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish LC50 (Oncorhynchus mykiss (rainbow trout)) 6.95 mg/l

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	Exposure time: 96 h
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 2.4 mg/l Exposure time: 48 h
Toxicity to aquatic plants	EC50 (Raphidocelis subcapitata (freshwater green alga)) 1.017 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient thien carbazone-methyl. EC50 (Lemna gibba (gibbous duckweed)) 0.00131 mg/l Growth rate; Exposure time: 7 d The value mentioned relates to the active ingredient thien carbazone-methyl.
Biodegradability	Thien carbazone-methyl: Not rapidly biodegradable Mefenpyr-diethyl: Not rapidly biodegradable
Koc	Thien carbazone-methyl: Koc: 100 Mefenpyr-diethyl: Koc: 625
Bioaccumulation	Thien carbazone-methyl: Does not bioaccumulate. Mefenpyr-diethyl: Bioconcentration factor (BCF) 232 Does not bioaccumulate.
Mobility in soil	Thien carbazone-methyl: Moderately mobile in soils Mefenpyr-diethyl: Slightly mobile in soils
Additional ecological information	No other effects to be mentioned.
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines. Dispose in accordance with all local, state/provincial and federal regulations.
Contaminated packaging	Do not re-use empty containers. Triple rinse containers.

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Puncture container to avoid re-use.
Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning.
If burned, stay out of smoke.
Follow advice on product label and/or leaflet.

SECTION 14: TRANSPORT INFORMATION

TDG

UN number	3082
Labels	9
Packaging group	III
Marine pollutant	Marine pollutant
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (THIENCARBAZONE-METHYL)

49CFR

Not dangerous goods / not hazardous material

IMDG

UN number	3082
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (THIENCARBAZONE-METHYL SOLUTION)

IATA

UN number	3082
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (THIENCARBAZONE-METHYL SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

SECTION 15: REGULATORY INFORMATION

PCP Registration No. 29070

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SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 2 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: The following sections have been revised: Section 3: Composition / Information on Ingredients. Section 15: Regulatory information. Reviewed and updated for general editorial purposes.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

Revision Date: 12/17/2018

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

GROUP	7	FUNGICIDE
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VIBRANCE® 500FS Seed Treatment

FUNGICIDE

AGRICULTURAL

SUSPENSION

Broad-spectrum seed treatment fungicide for control of seed- and soil-borne diseases of certain crops.

GUARANTEE:

Sedaxane 500 g/L

Contains 1,2-benzisothiazolin-3-one at 0.006% as a preservative.

**READ THE LABEL AND ATTACHED BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

REGISTRATION NO: **30438**
PEST CONTROL PRODUCTS ACT

Syngenta Canada Inc.
140 Research Lane, Research Park
Guelph, Ontario
N1G 4Z3
Telephone: 1-877-964-3682

Special Use Restrictions:

This product contains no colourant. All seed treated with this product must be conspicuously coloured at the time of treatment. Regulations pertaining to the "Seeds Act" must be strictly adhered to when using this product.

No open transfer is permitted for commercial seed treatment of barley, wheat, oats, rye, triticale, millet [pearl and proso], teosinte, and wild rice.

No on-farm seed treatment is permitted for corn, sorghum, and members of Crop Subgroup 20A (Canola/Rapeseed Subgroup).

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

FIRST AID

IN CASE OF POISONING, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If inhaled, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If swallowed, call a poison control centre or doctor **IMMEDIATELY** for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing, take off contaminated clothing. Rinse skin **IMMEDIATELY** with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

If in eyes, hold eyes open and rinse slowly and gently with water for 15–20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

Never give anything by mouth to an unconscious person. Remove person to a safe and uncontaminated area. Seek medical attention **IMMEDIATELY** if irritation persists or is severe. Have the product container or label with you when calling a poison control centre or doctor, or going for treatment.

TOXICOLOGICAL INFORMATION

Treat symptomatically. Product contains petroleum distillates. Vomiting may cause aspiration pneumonia.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN AND DOMESTIC ANIMALS. Wash hands and face after handling and before eating, using tobacco (including smoking), applying cosmetics, or using the toilet. Avoid contamination of feed and foodstuffs.

VIBRANCE® 500FS Seed Treatment is for use on-farm (using an open pour system) and in closed transfer commercial seed treatment facilities only on barley, wheat, oats, rye, triticale, millet [pearl and proso], teosinte, and wild rice. Closed transfer includes closed mixing, loading, calibrating and closed treatment equipment. It is also for use in commercial seed treatment facilities only on corn,

sorghum, members of Crop Group 20A and soybean.

For pulse crops and soybean, on-farm and commercial seed treatment (using either an open or closed transfer application system, in facilities or with mobile treaters) is permitted.

Treat seed in a well-ventilated area.

For commercial seed treatment:

Cleaners must wear chemical-resistant coveralls over a long-sleeved shirt and long pants, and chemical-resistant gloves. Treaters, baggers, sewers, stackers, forklift operators and others must wear cotton coveralls over a long-sleeved shirt and long pants, and chemical-resistant gloves. For good hygiene practice, it is also recommended to wear a NIOSH approved N95 filtering facepiece respirator (dust mask) that is properly fit tested during all job activities.

For on-farm treating and planting:

When treating seeds, handling and planting treated seed, workers must wear cotton coveralls or long sleeved shirt and long pants, chemical-resistant gloves, and work boots. For good hygiene practice, it is also recommended to wear a NIOSH approved N95 filtering facepiece respirator (dust mask) that is properly fit tested during all job activities.

NOTE: In case of accident, take the product label to the emergency facility or physician.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's website at www.croplife.ca.

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms. Do not contaminate food, feed, domestic or irrigation water supplies, lakes, streams and ponds.

Treated seed is toxic to small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

STORAGE

Ideal storage temperature is above freezing and below 30 °C. Repeated freeze-thawing of VIBRANCE 500FS Seed Treatment will not affect the physical integrity of the product. If the product should freeze, bring the product back to room temperature and ensure the contents are mixed well prior to application.

USE RESTRICTIONS

1. Treated seed must not be used for food, feed or oil processing.
2. Store away from food and feed.
3. For small-grain cereals, soybean and canola seed treated with VIBRANCE 500FS Seed Treatment, do not graze or feed livestock on treated areas for 45 days after planting. Do not graze or feed livestock on treated area for 60 days after planting corn, sorghum or dry beans

or peas (Crop Subgroup 6C). Do not graze or feed livestock on sugar beet tops prior to harvest of mature roots.

4. Do not plant any crop other than those on the VIBRANCE 500FS Seed Treatment label within 60 days to fields in which seed treated with VIBRANCE 500FS Seed Treatment were planted.
5. All bags containing treated seed for sale or use in Canada must be labeled or tagged as follows: **“This seed has been treated with sedaxane fungicide. Wear long-sleeved shirt, long pants, and chemical-resistant gloves when handling treated seed. Do not graze or feed livestock on seeded area for 45 days after planting small grain cereals, soybean, canola, rapeseed or mustard (Crop Subgroup 20A) or 60 days after planting corn, sorghum or dry beans and peas (Crop Subgroup 6C). Do not graze or feed livestock on sugar beet tops prior to harvest of mature roots. Do not use for food, feed or oil processing. Store away from food and feed.”**

DECONTAMINATION AND DISPOSAL

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

CONTAINER DISPOSAL:

For recyclable containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For Returnable Containers:

Do not reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

For Refillable Containers:

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,
CALL 1-800-327-8633 (FASTMED)***

GENERAL INFORMATION

VIBRANCE 500FS Seed Treatment is preventative seed treatment fungicide with systemic

properties recommended for the control of labeled disease of certain crops. For additional control of certain seed- and soil-borne pathogens and (or) insect pests, VIBRANCE 500FS Seed Treatment may be combined with the following seed treatments:

Crop Group 15 (Cereals, except corn): VIBRANCE 500FS Seed Treatment may be mixed with DIVIDEND XL RTA® Fungicide or DIVIDEND EXTREME Fungicide for broad spectrum disease control of cereals. For protection from various insects, VIBRANCE 500FS Seed Treatment may be mixed with CRUISER® 5FS Seed Treatment Insecticide in commercial seed treatment facilities with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only. This tank-mix option is only valid for those crops common to the registered labels of VIBRANCE 500FS Seed Treatment and CRUISER 5FS Seed Treatment Insecticide. For combined protection from labeled insect pests and soil- and seed-borne pathogens, VIBRANCE 500FS Seed Treatment may be mixed with CRUISER MAXX® Cereals Seed Treatment or CRUISER MAXX Cereals Commercial Seed Treatment. These tank-mix options are only valid for those crops common to the registered labels of VIBRANCE 500FS Seed treatment and CRUISER MAXX Cereals Seed Treatment or CRUISER MAXX Cereals Commercial Seed Treatment. Consult each product label for registered use rates and follow all label use instructions. Read the label directions for each product and follow the most restrictive label precautions and limitations.

Corn (field, sweet, seed and pop): VIBRANCE 500FS Seed Treatment may be mixed with APRON XL® LS, MAXIM® XL, DYNASTY 100FS and MAXIM QUATTRO Seed Treatments in commercial seed treatment facilities to control a broad spectrum of diseases. For protection from various insect pests, VIBRANCE 500FS Seed Treatment may be mixed with CRUISER 5FS Seed Treatment Insecticide in commercial seed treatment facilities with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only. Consult each product label for registered use rates and follow all label use instructions. Read the label directions for each product and follow the most restrictive label precautions and limitations.

Crop Subgroup 20A – Canola/Rapeseed Subgroup: For additional disease control and protection from labeled insects in canola and mustard, VIBRANCE 500FS Seed Treatment may be mixed with HELIX XTra® Seed Treatment in commercial seed treatment facilities with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only. This tank-mix option is only valid for those crops common to the registered labels of VIBRANCE 500FS Seed Treatment and HELIX XTra Seed Treatment. Consult each product label for registered use rates and follow all label use instructions. Read the label directions for each product and follow the most restrictive label precautions and limitations.

Soybeans: VIBRANCE 500FS Seed Treatment may be mixed with APRON MAXX® RTA® or APRON MAXX RFC Seed Treatments and DYNASTY® 100FS Fungicide in commercial seed treatment facilities to control a broad spectrum of diseases. For protection from various insect pests, VIBRANCE 500FS Seed Treatment may be mixed with CRUISER 5FS Seed Treatment Insecticide in commercial seed treatment facilities with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only. For combined protection from labeled insect and soil- and seed-borne pathogens, VIBRANCE 500FS Seed Treatment may be mixed with CRUISER MAXX Beans Seed Treatment under the same “closed system” conditions as noted above. Consult each product label for registered use rates and follow all label use instructions. Read the label directions for each product and follow the most restrictive label precautions and limitations.

Crop Subgroup 6C (dried shelled peas and beans, including chickpea, lentils and fava beans): VIBRANCE 500FS Seed Treatment may be mixed with APRON XL LS, APRON MAXX

RTA, APRON MAXX RFC Seed Treatments in on-farm and commercial seed treatment facilities to control a broad spectrum of diseases. For protection from various insect pests, VIBRANCE Seed Treatment may be mixed with CRUISER 5FS Seed Treatment Insecticide in commercial seed treatment facilities with closed transfer including closed mixing, loading, calibrating, and closed treatment equipment only. Consult each product label for registered use rates and follow all label use instructions. Read the label directions for each product and follow the most restrictive label precautions and limitations.

Sugar Beet: VIBRANCE 500FS Seed Treatment may be tank mixed with APRON XL LS, MAXIM 480FS COLOURLESS, or DYNASTY 100FS Seed Treatments for additional control of certain seed- and soil-borne pathogens. For insect control, VIBRANCE 500FS Seed Treatment may be tank mixed with CRUISER 5FS Seed Treatment. Consult each product label for registered use rates and follow all label use instructions. Follow the most restrictive label precautions and limitations.

Note: Treatment of scarred or damaged seed or seed known to be of low vigour and poor quality may result in reduced germination and/or reduction of seed and seedling vigour. Treat a small quantity of seed using equipment similar to that planned for treating the total seed lot. Conduct germination tests on a small portion of the seed before committing the total seed lot to a selected seed treatment. Due to seed quality and seed storage conditions beyond the control of Syngenta Canada Inc., no claims are made to guarantee the germination of carry-over seed or propagating material for all crop seed.

DIRECTIONS FOR USE

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

VIBRANCE 500FS Seed Treatment mixes easily with water. When mixing with products from other manufacturers, the compatibility should be tested prior to use by conducting a jar test; mixing all intended seed treatments with the appropriate amount of water in a clear glass container, mix well, and allow to sit for one hour. Remix and observe for incompatibility.

VIBRANCE 500FS Seed Treatment may be applied as a seed treatment following the guidelines specified in the Directions for Use section of this label. Ensure product is thoroughly mixed prior to application. Apply VIBRANCE 500FS Seed Treatment as a water-based slurry utilizing standard slurry seed treatment equipment which provides uniform seed coverage. Uneven or incomplete seed coverage may not give the desired level of disease control. Thoroughly mix the recommended amount of VIBRANCE 500FS Seed Treatment into the required amount of water for the slurry treater and dilution rate to be used. Follow the manufacturer's application instructions for the seed treatment equipment being used. Maintain constant agitation of the slurry during the seed treatment process. Allow the seed to dry before bagging.

Depending on planting equipment, seed treated with VIBRANCE 500FS Seed Treatment or a combination of VIBRANCE 500FS Seed Treatment and other seed treatment products may not flow through planting equipment at the same rate as untreated seed. Recalibrate this equipment before planting treated seed.

This product contains no colourant. An appropriate colourant must be added when this product is applied to seed. Regulations pertaining to the "Seeds Act" must be strictly adhered to when using this product. Users are responsible for ensuring that the treated

seed, when dried and ready for bagging, has an unnatural colour.

Seed Treatment and inoculants: VIBRANCE 500FS Seed Treatment is compatible with Rhizobium based inoculants. Please check with inoculant manufactures for details prior to use. Note: Mixing with inoculants may increase drying time while treating extending the processing time.

USE RATES

CROP GROUP 15 (CEREALS)	
CROPS	Barley
DISEASES CONTROLLED	True loose smut caused by <i>Ustilago nuda</i> Seed decay, seedling blight and damping-off caused by <i>Rhizoctonia solani</i>
RATE	5 – 10 mL/100 kg seed (2.5 – 5 g ai/100 kg seed)
NOTES	Use the low rate (2.5 g ai/100 kg) for control of pre-emergent damping-off, seed decay, or seedling blight. For extended control of post-emergent damping-off and seedling blight or high disease pressure due to short cropping rotations, or high levels of seed borne infections like smuts, use the high rate (5 g ai/100 kg).
CROPS	Wheat
DISEASES CONTROLLED	Loose smut caused by <i>Ustilago tritici</i> Seed decay, seedling blight and damping-off caused by <i>Rhizoctonia solani</i>
RATE	5 – 10 mL/100 kg seed (2.5 – 5 g ai/100 kg seed)
NOTES	Use the low rate (2.5 g ai/100 kg) for control of pre-emergent damping-off, seed decay, or seedling blight. For extended control of post-emergent damping-off and seedling blight or high disease pressure due to short cropping rotations, or high levels of seed borne infections like smuts, use the high rate (5 g ai/100 kg).
CROPS	Buckwheat, Millet (Pearl and Proso), Oats, Rye, Sorghum, Teosinte, Triticale, Wild Rice
DISEASES CONTROLLED	Seed decay, seedling blight and damping-off caused by <i>Rhizoctonia solani</i>
RATE	5 – 10 mL/100 kg seed (2.5 – 5 g ai/100 kg seed)
NOTES	Use the low rate (2.5 g ai/100 kg) for control of pre-emergent damping-off, seed decay, or seedling blight. For extended control of post-emergent damping-off and seedling blight or high disease pressure due to short cropping rotations, or high levels of seed borne infections like smuts, use the high rate (5 g ai/100 kg).
CROPS	Corn
DISEASES CONTROLLED	Seed decay, seedling blight and damping-off caused by <i>Rhizoctonia solani</i>
RATE	0.0125 – 0.025 µL/seed (6.25 – 12.5 µg ai/seed) This rate is equivalent to 5 – 10 mL/100 kg seed (2.5 – 5 g ai/100 kg seed) based on a seed weight of 4000 seeds/kg.
NOTES	Use the low rate (6.25 µg ai/seed) for control of pre-emergent damping-off, seed decay, or seedling blight. For extended control of post-emergent damping-off and seedling blight or under high disease pressure due to short cropping rotations use the high rate (12.5 µg ai/seed).

OILSEEDS	
CROPS	Crop Subgroup 20A - Canola/Rapeseed Subgroup: Includes canola, borage, crambe, echium, flax seed, gold of pleasure, hare's ear mustard, lequerella, lunaria, meadowfoam, milkweed, mustard seed, oil radish, poppy seed, rapeseed, and cultivars and hybrids of the above crops.
DISEASES CONTROLLED	Seed decay, seedling blight and damping-off caused by <i>Rhizoctonia solani</i>
RATE	5 – 10 mL/100 kg seed (2.5 – 5 g ai/100 kg seed)
NOTES	Use the low rate (2.5 g ai/100 kg) for control of pre-emergent damping-off, seed decay, or seedling blight. For extended control of post-emergent damping-off and seedling blight or under high disease pressure due to short cropping rotations use the high rate (5 g ai/100 kg).
LEGUME VEGETABLES	
CROPS	Soybeans
DISEASES CONTROLLED	Seed decay, seedling blight and damping-off caused by <i>Rhizoctonia solani</i>
RATE	0.0076 – 0.015 µL/seed (3.8 – 7.6 µg ai/seed) This rate is equivalent to 5 – 10 mL/100 kg seed (2.5 – 5 g ai/100 kg seed) based on a seed weight of 6600 seeds/kg.
NOTES	Use the low rate (3.8 µg/seed) for control of pre-emergent damping-off, seed decay, or seedling blight. For extended control of post-emergent damping-off and seedling blight or under high disease pressure due to short cropping rotations use the high rate (7.6 µg/seed).
CROPS	Crop Subgroup 6C – Dried Shelled Peas and Beans, Chickpeas, Lentils and Fava Beans
DISEASES CONTROLLED	Seed decay, seedling blight and damping-off caused by <i>Rhizoctonia solani</i>
RATE	5 – 10 mL/100 kg seed (2.5 – 5 g ai/100 kg seed)
NOTES	Use the low rate (2.5 g ai/100 kg) for control of pre-emergent damping-off, seed decay, or seedling blight. For extended control of post-emergent damping-off and seedling blight or under high disease pressure due to short cropping rotations use the high rate (5 g ai/100 kg).
SUGAR BEET	
CROPS	Sugar beet
DISEASES CONTROLLED	Control of damping off and suppression of crown and root rot caused by <i>Rhizoctonia solani</i>
RATE	1 – 5 mL/100000 seeds (0.5 – 2.5 g ai/100000 seeds)
NOTES	For import use only. Seed must not be treated in Canada.

Resistance Management Recommendations

For resistance management, VIBRANCE 500FS Seed Treatment contains sedaxane, a Group 7 fungicide. Any fungal population may contain individuals naturally resistant to VIBRANCE 500FS Seed Treatment and other Group 7 fungicides. A gradual or total loss of pest control may occur

over time if these fungicides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

To delay fungicide resistance:

Where possible, rotate the use of VIBRANCE 500FS Seed Treatment or other Group 7 fungicides with different groups that control the same pathogens.

VIBRANCE 500FS Seed Treatment is a carboxamide fungicide; therefore, continuous or sequential use of carboxamide fungicides within or during successive growing seasons must be avoided or reduced. VIBRANCE 500FS Seed Treatment is not cross-resistant with other classes of fungicide that have different modes of action.

Seed treatment use should be based on an IPM program that includes scouting, historical information related to pesticide use and crop rotation and considers cultural, biological and other chemical control practices.

Monitor treated fungal populations for sign of resistance development. If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, if available.

Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and disease problems in your area.

For further information or to report suspected resistance, contact Syngenta company representatives at 1-87-SYNGENTA (1-877-964-3682) or at www.syngenta.ca.

APRON XL[®], APRON MAXX[®], CRUISER[®], CRUISER MAXX[®], DIVIDEND XL RTA[®], DYNASTY[®], HELIX XTra[®], MAXIM[®], RTA[®] and VIBRANCE[®] are trademarks of a Syngenta Group Company.

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**In Case of Emergency, Call
1-800-327-8633 (FAST MED)**

Date of MSDS Preparation (Y/M/D): 2016-02-01

Supersedes date (Y/M/D): 2013-02-01

MSDS prepared by:
Department of Regulatory & Biological Assessment
Syngenta Canada Inc.

For further information contact:
1-87-SYNGENTA (1-877-964-3682)

SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: VIBRANCE™ 500FS Fungicide Formulation No.: A16148C
Registration Number: 30438 (Pest Control Products Act)
Chemical Class: A pyrazole-carboxamide fungicide

Active Ingredient (%): Sedaxane (43.7%) CAS No.: 874967-67-6
Chemical Name: N-[2-[1,1'-bicyclopropyl]-2-ylphenyl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide.
Product Use: A fungicide for use on crops registered under the Pest Control Products Act. Please refer to product label for further details.

SECTION – 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Titanium Dioxide CAS No. 13463-67-7	15 mg/m ³ TWA (total)	10 mg/m ³ TWA	Not Established	IARC Group 2B	Not Established
Propylene Glycol CAS No. 57-55-6	Not Established	Not Established	10 mg/m ³ TWA ****	No	Yes
Glycerin CAS No. 56-81-5	15 mg/m ³ TWA (total); 5 mg/m ³ TWA (respirable)	10 mg/m ³ TWA (total)	Not Established	No	Not Established
Sedaxane	Not Established	Not Established	Not Established	No	Not Established

**** Recommended by AIHA (American Industrial Hygiene Association)

† Material listed in Ingredient Disclosure List under Hazardous Products Act.

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

May cause eye and skin irritation.

Hazardous Decomposition Products

None known.

Physical Properties

Appearance: Beige liquid.
Odour: Aromatic odour..

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Potential Health Effects

Relevant routes of exposure: Skin, eyes, mouth, lungs.

SECTION – 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Material Safety Data Sheet with you when calling Syngenta, a poison control center or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [**1-800-327-8633 (1-800-FASTMED)**], for further information.

EYE CONTACT: Flush eyes with clean water, holding eyelids apart for a minimum of 15 - 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta, a poison control center or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

SKIN CONTACT: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with plenty of water for 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

INHALATION: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

INGESTION: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control center. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

NOTES TO PHYSICIAN:

There is no specific antidote. Treat symptomatically.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED:

None known.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: Not detected below 100°C.

Upper and lower flammable (explosive) limits in air: Not Applicable

Auto-ignition temperature: 435 ± 5°C

Flammability: Not flammable

Hazardous combustion products: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Conditions under which flammability could occur: Keep fire exposed containers cool by spraying with water.

Extinguishing media: Use foam, carbon dioxide, dry powder, halon extinguishant. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

Sensitivity to explosion by mechanical impact: None known.

Sensitivity to explosion by static discharge: None known.

SECTION – 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices. A small spill can be handled routinely. Use adequate ventilation and wear equipment and clothing as described in Section 8 and/or the product label.

Procedures for dealing with release or spill: Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with detergent and water. Pick up wash liquid with additional absorbent and place into compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory authority.

SECTION – 7: HANDLING AND STORAGE

Handling practices: KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Appropriate storage practices/requirements: Store in original container only in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Protect from sun and humidity. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

National Fire Code classification: Not specified.

SECTION – 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Applicable control measures, including engineering controls: Ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV. Warehouses, production area, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

CONSULT THE PRODUCT LABEL FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS.

Personal protective equipment for each exposure route:

General: Avoid breathing vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or using tobacco.

INGESTION: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

EYES: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

SKIN: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

INHALATION: A respirator is not normally required when handling this substance. A combination particulate/organic vapour respirator should be used until effective engineering controls are installed to comply with occupational exposure limits, or until exposure limits are established. Use a NIOSH certified respirator with a combination acid gas/organic vapour cartridge or canister and any N, P or R filter. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Beige liquid.

Formulation Type: Flowable suspension.

Odour: Aromatic

pH: 6.39

Vapour pressure and reference temperature: 1.3×10^{-9} mmHg @ 20 °C (Sedaxane)

Vapour density: Not applicable.

Boiling point: Not Available

Melting point: Not Applicable

Freezing point: Not applicable.

Specific gravity or density: 1.17 g/cm³ @ 20 °C.

Evaporation Rate: Not available.

Water/oil partition coefficient: Not available.

Odour threshold: Not available.

Viscosity: 120-400 cps (or mPas) @ 20°C

Solubility in Water: 14 mg/L @ 25 °C (Sedaxane)

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable under normal use and storage conditions.

Conditions to avoid: Excessive heat.

Incompatibility with other materials: None known.

Hazardous decomposition products: Can decompose at high temperatures forming toxic gases.

Hazardous polymerization: Will not occur.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Slight Acute Toxicity</u> Oral (LD50 Rabbit):	2,975 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u> Dermal (LD50 Rabbit):	> 5,050 mg/kg body weight
Inhalation:	<u>Low Acute Toxicity</u> Inhalation (LC50 Rat):	> 2.56 mg/L air - 4 hours
Eye Contact:	<u>Minimally Irritating (Rabbit)</u>	
Skin Contact:	<u>Minimally Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Mouse)</u>	

Reproductive/Developmental Effects

Sedaxane: None observed.

Chronic/Subchronic Toxicity Studies

Sedaxane: Increased liver weight and thyroid hypertrophy in rats

Carcinogenicity

Sedaxane: At extremely high doses, numerically higher incidences of uterine, thyroid and liver tumors (male and/or female rats) and liver tumors (male mice) were within the range of normal background variation and thus considered unrelated to treatment. Canadian PMRA and United States EPA have taken a more conservative position that these high-dose findings are treatment-related in rats and mice. The dose levels where these findings occur are not relevant to human exposure levels.

Other Toxicity Information:

None.

Toxicity of Other Components

Propylene Glycol

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Chronic dietary exposure caused kidney and liver injury in experimental animals..

Titanium Dioxide

Titanium dioxide is listed as an IARC Group 2B (Possibly Carcinogenic to Humans). Prolonged exposure causes respiratory irritation and may lead to pulmonary fibrosis.

Glycerin

Repeated or prolonged exposure to concentrated solutions may result in dermatitis.

Other materials that show synergistic toxic effects together with the product: None known.

Target Organs

Active Ingredient

Sedaxane: Liver

Inert Ingredients

Propylene Glycol: CNS, kidney, liver

Titanium Dioxide: Respiratory tract

Glycerin: Skin.

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects

VIBRANCE 500FS Fungicide is applied as a seed treatment for the control of various diseases in registered crops. The active ingredient, sedaxane, is toxic to aquatic wildlife.

Ecotoxicity Effects:

Sedaxane Technical:

Green Algae 5-day EC ₅₀	1.9 ppm
Invertebrate (Water Flea) 48-hour EC ₅₀	6.1 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	1.1 ppm
Birds (Bobwhite Quail) 8-day Dietary LC ₅₀	> 2,000 mg/kg

Environmental Fate

Sedaxane is not readily biodegradable, is moderately persistent in soil, and has a moderate to low mobility in soil.

SECTION – 13: DISPOSAL CONSIDERATIONS

Waste disposal information: Do not reuse empty containers unless they are specifically designed to be re-filled. Empty container retains product residue. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents

must accompany the shipment.

SECTION – 14 : TRANSPORT INFORMATION

Shipping information such as shipping classification:

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION - ROAD/RAIL

Not Regulated.

SECTION – 15: REGULATORY INFORMATION

WHMIS classification for product: Exempt

A statement that the MSDS has been prepared to meet WHMIS requirements, except for use of the 16 headings.

This MSDS has been prepared in accordance with WHMIS requirements, but the data are presented under 16 headings.

Other regulations; restrictions and prohibitions

Pest Control Products (PCP) Act Registration No.: 30438

SECTION – 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant MSDS. Hazardous properties of all ingredients have been considered in the preparation of this MSDS. Read the entire MSDS for the complete hazard evaluation of this product.

Prepared by: Syngenta Canada Inc.
1-87-SYNGENTA (1-877-964-3682)

Syngenta Canada Inc. believes that the information and recommendations contained herein (including data and statements) are accurate as of the date thereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and of the information referred to herein are beyond the control of Syngenta Canada Inc., Syngenta Canada Inc. expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.

VIBRANCE™ is a trademark of a Syngenta Group Company.

Container Label

GROUP	2	6	HERBICIDE
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VIPER® ADV

For weed control in field and succulent peas, dry faba beans, soybeans, dry beans, seedling sainfoin for seed production, seedling and established red and alsike clover for seed production, and seedling and established alfalfa for seed, forage and hay

For sale for use in the Prairie Provinces and Interior of British Columbia Only

HERBICIDE

SOLUTION

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENTS: Imazamox 20 g/L
Bentazon (present as the sodium salt) 429 g/L a.e.

Warning, contains the allergen soy

REGISTRATION NO. 30626

PEST CONTROL PRODUCTS ACT

**READ THE LABEL AND THIS BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**



WARNING

POISON

**EYE IRRITANT
POTENTIAL SKIN SENSITIZER**

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT
1-800-454-2673**

NET CONTENTS: 1 L - 1000 L, Bulk

BASF Canada Inc.
100 Milverton Drive, 5th Floor
Mississauga, Ontario L5R 4H1
1-877-371-2273

VIPER is a registered trade-mark of BASF Agrochemical Products B.V.,
used with permission by BASF Canada Inc.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. **DO NOT** take internally. Harmful or fatal if swallowed.
3. **DO NOT** get in eyes or on skin. Causes eye irritation.
4. Potential skin sensitizer.
5. Wash exposed areas of skin thoroughly after handling and before eating, drinking or smoking or going to the washroom. Take a shower immediately after work.
6. Wear a long-sleeved shirt, long pants and chemical resistant gloves during mixing, loading, application, clean-up and repair. In addition, wear goggles or face shield during mixing and loading.
7. If clothing becomes contaminated, remove immediately and wash. Store and wash all protective clothing separately from household laundry. Wash in detergent and hot water before reuse. Wear freshly laundered clothes daily.
8. **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) or to estuarine/marine habitats.
9. Do not enter or allow workers entry into treated areas during the restricted entry interval (REI) of 12 hours.
10. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continuing rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

Observe the buffer zones and precautionary measures specified under DIRECTIONS FOR USE.

TOXIC to non-target terrestrial plants.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

STORAGE

1. Store the product in original, tightly-closed container and do not allow water to be introduced into this container.
2. **DO NOT** ship or store the product near food, feed, seed or fertilizers.
3. Store the product in a cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.

DISPOSAL

Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Returnable-Refillable Containers

For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

VIPER® ADV

For weed control in field and succulent peas, dry faba beans, soybeans, dry beans, seedling sainfoin for seed production, seedling and established red and alsike clover for seed production, and seedling and established alfalfa for seed, forage and hay

For sale for use in the Prairie Provinces and Interior of British Columbia Only

HERBICIDE
SOLUTION

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENTS: Imazamox 20 g/L
Bentazon (present as the sodium salt) 429 g/L a.e.

Warning, contains the allergen soy

REGISTRATION NO. 30626

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KEEP OUT OF REACH OF CHILDREN**



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POTENTIAL SKIN SENSITIZER**

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NET CONTENTS: 1 L - 1000 L, Bulk

BASF Canada Inc.
100 Milverton Drive, 5th Floor
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1-877-371-2273

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GENERAL INFORMATION

VIPER ADV combines the two active ingredients: imazamox, belonging to herbicide mode of action Group 2, and bentazon belonging to the herbicide mode of action Group 6. Imazamox is a selective herbicide that when applied as an early post-emergence treatment may be absorbed through both the roots and foliage. Susceptible weeds stop growing and eventually die. Bentazon provides selective post-emergence control of many broadleaf weeds. Bentazon does not control grasses. Bentazon is a herbicide with mainly contact action. Uptake into the plant occurs primarily through the leaves. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in incomplete control of small weeds growing underneath.

Cool weather conditions or drought will delay herbicidal activity and if prolonged, may result in poor weed control. Use of **VIPER ADV** in hot, humid weather may result in temporary leaf yellowing, leaf flecking, bronzing or burning. The crop usually outgrows this condition within 10 days (see Restrictions and Limitations).

REGISTERED CROPS

VIPER ADV will provide broad-spectrum weed control of most annual grasses and broadleaf weeds in field and succulent peas, dry faba beans, soybeans, dry beans, seedling sainfoin for seed production, seedling and established red and alsike clover for seed production, and seedling and established alfalfa for seed, forage and hay.

DIRECTIONS FOR USE

APPLICATION INSTRUCTIONS

Field Peas, Dry Faba Beans and Soybeans

Timing	Early post-emergence
Rate	1.0 L/ha of VIPER ADV + 2 L/ha nitrogen source* (UAN 28%)
Water Volume	100 L/ha
Weeds Controlled	VIPER ADV will provide control of broadleaf and grass weeds as listed in the BROADLEAF WEED AND GRASS CONTROL section of this label.
Pre-harvest Interval	60 days
Remark	Application should be made from the 3 - 6 node stage of field peas and dry faba beans and the cotyledon to 4-leaf stage of soybeans and after weeds have emerged. Apply when broadleaf weeds are from the cotyledon to 4-leaf stage and when grassy weeds are at the 1 - 4 true leaf or early tillering. For field peas and dry faba beans, initial transient crop yellowing may be observed after application but this is outgrown and should not affect yield. DO NOT make more than one application per season.

* Nitrogen source: A reduction in grass control can be observed without the addition of a nitrogen source (UAN 28%)

Roundup Ready Soybean Varieties only

Timing	Early post-emergence
Rate	1.0 L/ha of VIPER ADV + 900 – 1800 g a.e./ha glyphosate ¹ A nitrogen source (UAN 28%) is not required for control of volunteer glyphosate tolerant canola or weeds listed on the glyphosate label.
Water Volume	100 L/ha
Weeds Controlled	Volunteer glyphosate tolerant canola Consult the glyphosate label for weeds controlled by glyphosate. For additional weeds controlled by VIPER ADV , include UAN 28% at 2 L/ha.
Pre-harvest Interval	60 days
Remark	Application should be made from the cotyledon to 4-leaf stage of soybeans and after weeds have emerged. Apply when volunteer canola is from the cotyledon to 4-leaf stage. Consult the glyphosate label for appropriate staging of weeds controlled by glyphosate. Read and observe all label directions, including rates, restrictions and grazing limitations for each product in the tank mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.
Warning	Apply this tank mix to Roundup Ready Soybean Varieties only, i.e. varieties with the Roundup Ready gene. SOYBEAN VARIETIES WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

¹ Consult the glyphosate label for rate and weeds controlled by glyphosate. Use only glyphosate products registered for post-emergence application to glyphosate tolerant soybean. A rate of 900 to 1800 g a.e./ha is equivalent to 1.67 to 3.33 L/ha of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide (540 g a.e./L). Other glyphosate formulations may require a rate calculation adjustment according to product guarantee.

Dry Edible Beans (all types of the species *Phaseolus vulgaris*¹)

VIPER ADV may be topped up with application of **BASAGRAN® FORTE** as below for control of additional weeds.

Timing	Early post-emergence
Rate	1.0 L/ha of VIPER ADV + 0.36 L/ha of BASAGRAN FORTE + 2 L/ha nitrogen source ² (UAN 28%)
Water Volume	100 L/ha
Weeds Controlled	VIPER ADV will provide control of broadleaf and grass weeds as listed in the BROADLEAF WEED AND GRASS CONTROL section of this label.
Pre-harvest Interval	60 days
Remark	Application should be made after 1 st trifoliolate leaf has fully expanded up to the 2 nd trifoliolate leaf stage of the dry bean and after weeds have emerged. Apply when broadleaf weeds are from the cotyledon to 4-leaf stage and when grassy weeds are at the 1 to 4-true leaf or early tillering. Initial transient crop yellowing may be observed after application but this is outgrown and should not affect yield. DO NOT make more than one application per season.
Warning	Only the following dry bean types have been tested and demonstrate acceptable tolerance: Pinto, pink, red Mexican, cranberry, black, great northern and navy.

Read and observe all label directions, including rates, restrictions and grazing limitations for each product in the tank mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

NOTE TO USER

The DIRECTIONS FOR USE for this product for the uses described above were developed by persons other than BASF Canada and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. BASF Canada itself makes no representation or warranty with respect to performance (efficacy) and crop tolerance (phytotoxicity) claims for this product when used on the crops listed above.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerances arising, and agree to hold BASF Canada harmless from any claims based on efficacy or phytotoxicity in connection with the uses described above.

1 *Dry common bean varieties may vary in their tolerance to herbicides, including to **VIPER ADV**. In particular, white (navy) beans are more susceptible to herbicide injury which can result in delayed maturity. Since not all dry common bean varieties have been tested for tolerance to **VIPER ADV**, first use of **VIPER ADV** should be limited to a small area of each variety to confirm tolerance prior to adoption as a general field practice or consult your seed supplier or BASF Business Representative for more information.*

2 *Nitrogen source: A reduction in grass control can be observed without the addition of a nitrogen source (UAN 28%).*

NOTE TO USER – READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS:

The DIRECTIONS FOR USE for this product for the uses described below were developed by persons other than BASF Canada and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. BASF Canada itself makes no representation or warranty with respect to performance (efficacy) and crop tolerance (phytotoxicity) claims for this product when used on the crops listed below.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerances arising, and agree to hold BASF Canada harmless from any claims based on efficacy or phytotoxicity in connection with the uses described below.

Seedling and Established Red and Alsike Clover, and Seedling Sainfoin for Seed Production Only

Timing	Early post-emergence
Rate	1.0 L/ha of VIPER ADV + 2 L/ha nitrogen source ¹ (UAN 28%)
Water Volume	100 L/ha
Weeds Controlled	VIPER ADV will provide control of broadleaf and grass weeds as listed in the BROADLEAF WEED AND GRASS CONTROL section of this label.
Remark	<p>DO NOT make more than one application per year.</p> <p>Apply as an early post-emergence treatment when weeds are actively growing. Apply when broadleaf weeds are from the cotyledon to 4-leaf stage and when grassy weeds are at the 1 to 4-true leaf or early tillering. Crop must be in the tolerant stage as indicated below:</p> <p>Seedling Clover and Sainfoin: Tolerant after third trifoliate stage.</p> <p>Established Clover: Application should be made before the crop canopy closes, prior to flowering, and when weeds are actively growing.</p> <p>Crop injury may occur under hot, humid conditions. Speed of recovery will be influenced by growing conditions and weed control. Some leaf scorch may appear, but the effect is transient and will outgrow within 3-4 weeks.</p> <p>CAUTION: Do not graze the treated crops or cut for hay.</p>

¹ A reduction in grass control can be observed without the addition of a nitrogen source (UAN 28%).

Succulent Peas

Timing	Early post-emergence
Rate	1.0 L/ha of VIPER ADV + 2 L/ha nitrogen source* (UAN 28%)
Water Volume	100 L/ha
Weeds Controlled	VIPER ADV will provide control of broadleaf and grass weeds (except for sow thistle (annual and perennial)) as listed in the BROADLEAF WEED AND GRASS CONTROL section of this label.
Pre-harvest Interval	40 days
Remark	Application should be made from 3 – 6 nodes and after weeds have emerged. Apply when broadleaf weeds are from the cotyledon to 4-leaf stage and grassy weeds are 1-4 true leaves or early tillering. Initial transient crop yellowing may be observed after application but this is outgrown and should not affect yield. Do not spray under hot humid conditions to avoid any bronzing of the pea pods.
Warning	Since not all types of succulent peas have been tested, first application should be limited to a small area or consult your seed supplier or BASF Business Representative for more information.

* A reduction in grass control can be observed without the addition of a nitrogen source (UAN 28%).

Succulent pea varieties may vary in their tolerance to herbicides, including to **VIPER ADV**. Some varieties are more susceptible to herbicide injury which can result in delayed maturity. Since not all succulent pea varieties have been tested for tolerance to **VIPER ADV**, first use of **VIPER ADV** should be limited to a small area of each variety to confirm tolerance prior to adoption as a general field practice.

Seedling and Established Alfalfa for Seed, Forage and Hay

For broad-spectrum weed control in alfalfa, **VIPER ADV** must be topped up with an application of **BASAGRAN FORTE** at a rate of 360 mL/ha as indicated below.

Timing	Early post-emergence
Rate	1.0 L/ha of VIPER ADV + 360 mL/ha of BASAGRAN FORTE + 2 L/ha nitrogen source ¹ (UAN 28%) For top-growth control of Canada thistle, apply an application of BASAGRAN FORTE 7-15 days later at a rate of 1.75 L/ha.
Water Volume	100 L/ha
Weeds Controlled	Refer to the BROADLEAF WEED AND GRASS CONTROL section of this label for weeds controlled. The addition of 360 mL/ha of BASAGRAN FORTE to VIPER ADV will provide control of the following additional weeds: Canada thistle (top-growth suppression)* Prostrate pigweed (suppression only) Spiny annual sow-thistle (suppression only) Stork's bill *For top growth control, an application of BASAGRAN FORTE 7-15 days later at a rate of 1.75 L/ha is required.
Pre-harvest Interval	DO NOT graze treated alfalfa or cut for hay within 20 days of application.
Remark	Apply as an early post-emergence treatment when weeds are actively growing. Application should be made when broadleaf weeds are from the cotyledon to 4-leaf stage and when grassy weeds are at the 1 to 4-true leaf or early tillering. Crop must be in the tolerant stage as indicated below: Seedling alfalfa: Tolerant after third trifoliate stage. For seedling alfalfa grown for seed, apply prior to bud formation. Established Alfalfa: Tolerant before crop canopy closes, prior to flowering. Crop injury may occur under hot, humid conditions. Speed of recovery will be influenced by growing conditions and weed control. Some leaf scorch may appear but the effect is transient and will outgrow within 3-4 weeks.

¹ A reduction in grass control can be observed without the addition of a nitrogen source (UAN 28%).

NOTE TO USER

The DIRECTIONS FOR USE for this product for the uses described above were developed by persons other than BASF Canada and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program. BASF Canada itself makes no representation or warranty with respect to performance (efficacy) and crop tolerance (phytotoxicity) claims for this product when used on the crops listed above.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerances arising, and agree to hold BASF Canada harmless from any claims based on efficacy or phytotoxicity in connection with the uses described above.

BROADLEAF WEED AND GRASS CONTROL

VIPER ADV applied as an early post-emergence treatment at a rate of 1.0 L/ha + 2 L/ha nitrogen source (UAN 28%) will control weeds as listed below:

• Barnyard grass
• Cleavers* (including Group 2 resistant biotypes)
• Cow cockle
• Green foxtail
• Green smartweed
• Hemp nettle*
• Japanese brome grass*
• Kochia* (including Group 2 resistant biotypes)
• Lamb's-quarters
• Lentils (including Clearfield ® Lentils ¹)
• Persian darnel
• Redroot pigweed
• Round-leaved mallow*
• Russian thistle
• Shepherd's purse
• Sowthistle*, annual
• Sowthistle**, perennial
• Stinkweed
• Volunteer barley
• Volunteer canary seed
• Volunteer canola (Clearfield and non- Clearfield tolerant canola)
• Volunteer durum wheat
• Volunteer spring wheat (non- Clearfield tolerant wheat)
• Volunteer tame oats
• Wild buckwheat*
• Wild mustard (including Group 2 resistant)
• Wild oats
• Yellow foxtail

* = suppression only

**= top growth suppression only

VIPER ADV + BASAGRAN FORTE applied as an early post-emergence treatment on dry edible beans at a rate of 1.0 L/ha + 0.36 L/ha **BASAGRAN FORTE** + 2 L/ha nitrogen source (UAN 28%) will provide control of the following weeds in addition to those listed above:

• Prostate pigweed*
• Spiny annual sowthistle*
• Storks bill

* = suppression only

MIXING INSTRUCTIONS

1. When applying **VIPER ADV**, always start with a clean sprayer. Thoroughly clean the sprayer by flushing the system with water containing detergent. Refer to previously applied product labels for specific cleaning instructions.
2. Fill clean spray tank three-quarters of the required amount of clean water and start agitation.
3. Add the correct amount of **VIPER ADV**. Continue to agitate.
4. Add the correct amount of **BASAGRAN FORTE** for dry beans. Continue to agitate.
5. Add the correct amount of the nitrogen source while continuing agitation.
6. Continue agitation while filling the spray tank with the remaining amount of water.
7. Maintain continuous and constant agitation throughout application until spraying is complete.
8. After any break in spraying operation, agitate thoroughly before spraying again. Check inside the tank to ensure that sprayer agitation is sufficient to remix the spray materials. Do not allow the mixture to sit overnight.
9. If an oil film starts to build up in the tank, drain it and clean the tank with strong detergent solution.
10. Immediately after use, thoroughly clean the sprayer by flushing the system with clean water containing detergent. Thoroughly flush tank, boom, hoses and in-line and nozzle screens with clean water to avoid possible injury to other crops.

Dispose of all rinsings in accordance with provincial regulations.

SPRAYING INSTRUCTIONS

Select proper nozzle to avoid spraying fine mist. For best results, use sprayers equipped with flat fan or similar nozzles to ensure coverage. Apply in a spray volume of 100 L/ha and at a pressure of 275 kPa. For applications to dense weed infestations and thick canopies, use the higher spray volume. Better coverage of the product results in enhanced control of weeds.

Keep bypass line on or near bottom of tank to minimize foaming. Use 16 mesh suction screens, 50 mesh screens elsewhere on sprayer.

FOLLOW CROPPING

Winter wheat can be planted 3 months after treatment (3 MAT) as a rotational crop.

Initial crop injury to non-**Clearfield** canola may be observed. Avoid spray overlap as yield reduction may result. The following crops may be grown safely the year following an application:

- Canary seed
- Field corn
- Field peas
- Soybeans
- Clearfield** Canola¹ (e.g., canola varieties with the **Clearfield** trait)
- Non-**Clearfield** canola*
- Lentils
- Spring wheat
- Durum wheat
- Spring barley
- Sunflower
- Tame oats
- Flax
- Chickpeas
- Clearfield** Sunflowers¹ (e.g., sunflower varieties with the **Clearfield** trait)

* Research studies have shown that non-**Clearfield** canola may be safely planted the year following an application of **VIPER ADV** in all regions of Western Canada except the Northern Peace River Region of Alberta (any area in Township 100 and north, including the areas of Keg River, La Crete, Fort Vermilion and High Level). In this region, non-**Clearfield** canola can be grown safely the second year following an application (2 YAT).

The following crop may be grown safely two years following an application:

- Mustard (condiment type only)

There are insufficient data for other follow crops. Conduct a field bioassay (a test strip grown to maturity) the year before growing any crop other than those listed above.

RESTRICTIONS AND LIMITATIONS

1. **DO NOT** apply when weather conditions may cause spray drift from treated fields to adjacent crops. Clean sprayer thoroughly after use to avoid damage to the next crop sprayed.
2. Apply using ground equipment only. **DO NOT APPLY BY AIR.**
3. **DO NOT** enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

4. **DO NOT** apply directly to water. **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.
5. **DO NOT** graze the treated dry bean and field pea crops or cut for hay; sufficient data are not available to support such use.
6. **DO NOT** graze treated soybeans or cut for hay within 20 days of application.
7. **DO NOT** treat any crops not listed on this label.
8. **DO NOT** apply to any crops that have been subjected to stress from conditions such as hail damage, flooding, drought, hot, humid weather, widely fluctuating temperature conditions, prolonged cold weather or injury from prior herbicide applications, as crop injury may result.
9. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational area is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.
10. In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact BASF at 1-877-371-2273 or www.agsolutions.ca for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by BASF.

WARNING

1. **DO NOT** apply **VIPER ADV** when weather conditions may cause spray drift from treated areas to adjacent crops.
2. Lentils, adzuki and mung beans, cucumbers, sugar beets and sunflowers can be injured by **VIPER ADV**.

SPRAY DRIFT MANAGEMENT FOR GROUND APPLICATIONS

Field Sprayer Application

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

DO NOT apply by air.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

Buffer Zones

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands).

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of Terrestrial Habitat
Field sprayer	Field and succulent peas, dry faba beans, soybeans, dry beans, red and alsike clover, alfalfa and sainfoin	1

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pesticides and Pest Management Regulatory Agency website.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, **VIPER ADV** is both a Group 2 and a Group 6 herbicide. Any weed population may contain or develop plants naturally resistant to **VIPER ADV** and other Group 2 and 6 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of **VIPER ADV** or other Group 2 and 6 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact BASF at 1-877-371-2273 or at www.agsolutions.ca.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. **DO NOT** take internally. Harmful or fatal if swallowed.
3. **DO NOT** get in eyes or on skin. Causes eye irritation.
4. Potential skin sensitizer.
5. Wash exposed areas of skin thoroughly after handling and before eating, drinking or smoking or going to the washroom. Take a shower immediately after work.
6. Wear a long-sleeved shirt, long pants and chemical resistant gloves during mixing, loading, application, clean-up and repair. In addition, wear goggles or face shield during mixing and loading.
7. If clothing becomes contaminated, remove immediately and wash. Store and wash all protective clothing separately from household laundry. Wash in detergent and hot water before reuse. Wear freshly laundered clothes daily.
8. **DO NOT** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) or to estuarine/marine habitats.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continuing rinsing eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

Observe the buffer zones and precautionary measures specified under DIRECTIONS FOR USE.

TOXIC to non-target terrestrial plants.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

STORAGE

1. Store the product in original, tightly-closed container and do not allow water to be introduced into this container.
2. **DO NOT** ship or store the product near food, feed, seed or fertilizers.

3. Store the product in a cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separately from other pesticides to avoid cross-contamination.

DISPOSAL

Recyclable Containers

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

Returnable-Refillable Containers

For disposal, this empty container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

BASAGRAN is a registered trade-mark of BASF SE, used with permission by BASF Canada Inc.

¹*Methods of growing plants which are resistant to certain acetohydroxyacid synthase (AHAS) herbicides are protected by Canadian Patent No. 1341465. The use of this product in the practice of patented methods could constitute patent infringement. The purchase of this product conveys no license to the purchaser to practice the patented methods. Further information can be obtained by contacting BASF Canada at 1-877-371-2273.*

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1. Identification

Product identifier used on the label

VIPER ADV

Recommended use of the chemical and restriction on use

Recommended use*: herbicide

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:

BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1, CANADA

Telephone: +1 289 360-1300

Emergency telephone number

CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

Other means of identification

PCP # 30626, 31422

Synonyms: Imazamox + bentazone sodium tech.

2. Hazards Identification

According to Controlled Products Regulations (CPR) (SOR/88-66)

Emergency overview

WARNING:
POISON.
Eye irritant.
Potential skin sensitizer.
KEEP OUT OF REACH OF CHILDREN.
Harmful if swallowed.
May be fatal if swallowed.

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Potential sensitizer.
Do not get in eyes, on skin, or on clothing.
Wash thoroughly after handling.

3. Composition / Information on Ingredients

According to Hazardous Products Regulations (HPR) (SOR/2015-17)

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
114311-32-9	1.7 %	Imazamox
50723-80-3	39.8 %	1H-2,1,3-Benzothiadiazin-4(3H)-one, 3-(1-methylethyl)-, 2,2-dioxide, sodium salt

4. First-Aid Measures

Description of first aid measures

General advice:

Remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

If on skin:

Wash thoroughly with soap and water.

If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

If swallowed:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, foam, carbon dioxide

Special hazards arising from the substance or mixture

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Hazards during fire-fighting:
carbon monoxide, carbon dioxide, nitrogen oxides
The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:
Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Do not breathe vapour/spray. Use personal protective clothing. Avoid contact with the skin, eyes and clothing.

Environmental precautions

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

Precautions for safe handling

No special measures necessary if stored and handled correctly. Ensure thorough ventilation of stores and work areas. When using do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift.

Protection against fire and explosion:

The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds.

Further information on storage conditions: Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination.

Protect from temperatures below: 0 °C

Changes in the properties of the product may occur if substance/product is stored below indicated temperature for extended periods of time.

Protect from temperatures above: 40 °C

Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

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8. Exposure Controls/Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

No occupational exposure limits known.

Advice on system design:

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Remove contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	alcohol-like	
Odour threshold:	Not determined due to potential health hazard by inhalation.	
Colour:	brown	
pH value:	approx. 4 - 6 (1 %(m), approx. 21 °C)	(pH Meter)
Melting point:	The product has not been tested.	
Boiling point:	approx. 100 °C	(measured)

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Flash point:	> 100 °C No flash point - Measurement made up to the boiling point.	(Regulation 440/2008/EC, A.9)
Flammability:	not applicable	
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.	
Upper explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.	
Autoignition:	517 °C	(Regulation 440/2008/EC, A.15)
Vapour pressure:	The product has not been tested.	
Density:	approx. 1.18 g/cm ³ (20 °C)	(OECD Guideline 109)
Vapour density:	not applicable	
Partitioning coefficient n-octanol/water (log Pow):	The statements are based on the properties of the individual components.	
<i>Information on: bentazon sodium</i>		
Partitioning coefficient n-octanol/water (log Pow):	0.77	

Thermal decomposition:	carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Hydrocarbons Stable at ambient temperature. If product is heated above decomposition temperature, toxic vapours will be released.	
Viscosity, dynamic:	38 mPa.s (20 °C)	
Viscosity, kinematic:	17 mm ² /s (40 °C)	(OECD 114)
Solubility in water:	soluble	
Evaporation rate:	not applicable	
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:

not fire-propagating (Regulation 440/2008/EC, A.21)

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

The product is chemically stable.

Hazardous polymerization will not occur. No hazardous reactions if stored and handled as prescribed/indicated.

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Conditions to avoid

Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures.

Incompatible materials

strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

Possible thermal decomposition products:

carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Hydrocarbons

Stable at ambient temperature. If product is heated above decomposition temperature, toxic vapours will be released.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Slightly toxic after single ingestion. Relatively nontoxic after short-term skin contact. Relatively nontoxic after short-term inhalation.

Oral

Type of value: LD50

Species: rat (female)

Value: > 500 - < 2,000 mg/kg

Inhalation

Type of value: LC50

Species: rat (male/female)

Value: > 5 mg/l

Exposure time: 4 h

Dermal

Type of value: LD50

Species: rat (male/female)

Value: > 5,000 mg/kg

Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

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The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion

Assessment of irritating effects: May cause moderate but temporary irritation to the eyes. May cause slight irritation to the skin.

Skin

Species: rabbit
Result: non-irritant

Eye

Species: rabbit
Result: non-irritant

Sensitization

Assessment of sensitization: Caused skin sensitization in animal studies.

Mouse Local Lymph Node Assay (LLNA)

Species: mouse
Result: Caused skin sensitization in animal studies.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. No substance-specific organotoxicity was observed after repeated administration to animals.

Genetic toxicity

Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

Reproductive toxicity

Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity

Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Other Information

Misuse can be harmful to health.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

Medical conditions aggravated by overexposure

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Individuals with pre-existing diseases of the respiratory system, skin or eyes may have increased susceptibility to excessive exposures.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to fish. There is a high probability that the product is not acutely harmful to aquatic invertebrates.

Toxicity to fish

Information on: bentazon sodium

LC50 (96 h) > 100 mg/l, *Oncorhynchus mykiss* (EPA 72-1)

Information on: imazamox

LC50 (96 h) > 119 mg/l, *Lepomis macrochirus*

Aquatic invertebrates

Information on: bentazon sodium

EC50 (48 h) > 100 mg/l, *Daphnia magna* (OECD Guideline 202, part 1)

Information on: imazamox

EC50 (48 h) > 100 mg/l, *Daphnia magna*

Aquatic plants

Information on: bentazon sodium

EC50 (7 d) 18 mg/l (growth rate), *Lemna gibba* (OECD guideline 221)

EC10 (7 d) 3.9 mg/l (growth rate), *Lemna gibba* (OECD guideline 221)

Information on: imazamox

EC10 (7 d) 0.0095 mg/l, *Lemna gibba*

EC50 (72 h) 29.1 mg/l (growth rate), *Pseudokirchneriella subcapitata*

EC50 (7 d) 0.031 mg/l (growth rate), *Lemna gibba*

Chronic toxicity to fish

Information on: bentazon sodium

No observed effect concentration (35 d) > 10 mg/l, *Pimephales promelas* (OECD Guideline 210)

Information on: imazamox

No observed effect concentration (96 d) 11.8 mg/l, *Oncorhynchus mykiss*

Chronic toxicity to aquatic invertebrates

Information on: bentazon sodium

No observed effect concentration (21 d) > 101 mg/l, *Daphnia magna* (OECD Guideline 202, part 2)

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Information on: imazamox
No observed effect concentration (21 d) 137 mg/l, Daphnia magna

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

The product has not been tested. The statement has been derived from the properties of the individual components.

Bioaccumulative potential

Assessment bioaccumulation potential

The product has not been tested. The statement has been derived from the properties of the individual components.

Bioaccumulation potential

Information on: bentazon sodium

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Information on: imazamox

Bioconcentration factor: < 1, Lepomis macrochirus (OECD-Guideline 305)

Does not accumulate in organisms.

Mobility in soil

Assessment transport between environmental compartments

The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: bentazon sodium

Following exposure to soil, the product trickles away and can - dependant on degradation - be transported to deeper soil areas with larger water loads.

Information on: imazamox

The substance will not evaporate into the atmosphere from the water surface.

Following exposure to soil, the product trickles away and can - dependant on degradation - be transported to deeper soil areas with larger water loads.

Additional information

Other ecotoxicological advice:

Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:

See product label for disposal and recycling instructions.

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Container disposal:

Rinse the container or liner as needed for disposal. Add rinsate to spray tank. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. Consult the product label for additional details.

14. Transport Information

Land transport

TDG

Not classified as a dangerous good under transport regulations

Sea transport

IMDG

Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Marine pollutant: YES
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains IMAZAMOX)

Air transport

IATA/ICAO

Hazard class: 9
Packing group: III
ID number: UN 3082
Hazard label: 9, EHSM
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains IMAZAMOX)

15. Regulatory Information

Federal Regulations

Registration status:

Chemical DSL, CA blocked / not listed

Crop Protection DSL, CA released / exempt

According to Controlled Products Regulations (CPR) (SOR/88-66)

WHMIS does not apply to this product.

16. Other Information

SDS Prepared by:

BASF NA Product Regulations
SDS Prepared on: 2016/11/02

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We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

END OF DATA SHEET



VP480 Herbicide

GROUP	9	HERBICIDE
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Water soluble herbicide for nonselective weed control in CROPLAND SYSTEMS AND IN FORESTRY AND OTHER NON-CROPLAND AREAS.

AGRICULTURAL and INDUSTRIAL

**READ THE LABEL AND BOOKLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN**

ACTIVE INGREDIENT: Glyphosate (present as dimethylamine salt) 480 g/L
solution

REGISTRATION NO. 28840 PEST CONTROL PRODUCTS ACT

**CAUTION: EYE AND SKIN IRRITANT
POTENTIAL SKIN SENSITIZER**

Net Contents: 7.5 L- bulk

Dow AgroSciences Canada Inc.
2400, 215-2nd Street S.W.
Calgary, Alberta
T2P 1M4
1-800-667-3852

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Weed Control in Glyphosate Tolerant Canola

VP480 Herbicide plus Lontrel™ 360

Weed Control in Glyphosate Tolerant Soybean (Roundup Ready®2 Yield) Soybean Varieties

Weed Control in Glyphosate Tolerant Soybean

VP480 Herbicide plus Pursuit Herbicide

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PERENNIAL WEED CONTROL

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May irritate eyes and skin

Avoid contact with eyes or with skin

KEEP OUT OF REACH OF CHILDREN

Wear long sleeved shirt, long pants and chemical resistant gloves during mixing, loading, application, clean up and repair. In addition, wear goggles or a face shield during mixing and loading.

Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind directions, temperature inversions, application equipment and sprayer settings.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

FIRST AID

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

TOXICOLOGICAL INFORMATION

No specific antidote. Employ supportive care. Treatment should be based on judgment of the physician in response to reactions of the patient.

AGRICULTURAL CHEMICAL

Do not ship or store with food, feeds, drugs or clothing.

ENVIRONMENTAL HAZARDS

Avoid direct applications to any body of water. Do not contaminate water by disposal of waste or cleaning of equipment. **TOXIC** to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE. To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

STORAGE

Avoid contamination of seed, feed, and foodstuffs.
Soak up small amounts of spill with absorbent clays.

DISPOSAL

Recyclable Containers:

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

Returnable Containers:

Do not reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

Refillable Containers

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

DIRECTIONS FOR USE

GENERAL INFORMATION

The restricted entry interval is 12 hours after application for all agricultural uses. For non-crop uses: Do not enter or allow entry into treated areas during the restricted-entry interval (REI) of 12 hours or until sprays have dried.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests. **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

Glyphosate is not to be applied using hand-wicking or hand-daubing methods.

Do not apply this product using aerial spray equipment except under conditions as specified within this label.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. Boom height must be 60 cm or less above the crop or ground.

Airblast or mist blower application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side. For airblast applications, turn off outward pointing nozzles at row ends and outer rows.

Aerial application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply when wind speed is greater than 16 km/h at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) coarse classification. To reduce drift caused by turbulent wingtip vortices, the nozzle distribution along the spray boom length **MUST NOT** exceed 65% of the wing- or rotorspan.

VP480 Herbicide, a water soluble liquid, mixes readily with water for application as a foliage spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

This herbicide moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days. Extremely cool or cloudy weather at treatment time may slow down activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above ground growth and deterioration of underground plant parts.

Delay application until vegetation has emerged to the stages described for control of such vegetation under the annual and perennial weed control sections of this booklet to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per hectare within the recommended range when weed growth is heavy or dense, or weeds are growing in an undisturbed (non-cultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

This product does not provide residual weed control. For subsequent residual weed control follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Do not mix with any surfactant, pesticide, herbicide oils or any other material other than water unless specified in this booklet. For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

Tank Mixtures

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Dow AgroSciences Canada Inc. at 1-800-667-3852 for information before mixing any pesticide or fertilizer that is not specifically recommended on this label. The user assumes the risk of losses that result from the use of tank mixes that do not appear on this label or that are not specifically recommended by Dow AgroSciences Canada Inc.

When applied as a tank-mix combination, read and observe all label directions, including rates and restrictions for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

MIXING AND APPLICATION

PRECAUTIONS

ATTENTION: AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

AVOID DRIFT - EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS. Even minute quantities of spray drift can cause severe damage or destruction to nearby crops, plants or other areas on which treatment is not intended, or may cause other unintended consequences.

DO NOT USE IN GREENHOUSES. REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, SUCH AS WATER FROM PONDS AND UNLINED DITCHES.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water. Do not contaminate water sources by disposal of wastes or cleaning of equipment.

NOTE: Use of this product in any manner not consistent with this booklet may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

MIXING AND APPLICATION EQUIPMENT INFORMATION

MIXING

For ground or industrial type sprayers, fill the spray tank with one-half the required amount of water. Add the proper amount of herbicide (see "Weed Control" sections of this booklet) and mix well before adding the remaining portion of water. Placing the filling hose below the surface of the liquid solution will prevent excessive foaming. Removing hose from tank immediately will avoid back siphoning into water source. Use of mechanical agitators may cause excessive foaming. Bypass lines should terminate at the bottom of the tank.

For use in knapsack sprayers, it is suggested that the proper amount of this herbicide be mixed with water in a larger container. Fill sprayer with the mixed solution.

APPLICATION EQUIPMENT

BOOM EQUIPMENT

For control of perennial weeds and woody brush and trees listed on this booklet using conventional boom equipment-- Apply this product in 50 to 300 L of clean water per hectare as a broadcast spray using no more than 275 kPa pressure. See "**Weed Control**" sections of this booklet for rates to control specific weeds.

For control of annual weeds listed on this booklet using conventional boom equipment--Apply this product in 50 to 100 L of clean water per hectare as a broadcast spray, except as otherwise stated on this label using no more than 275 kPa pressure. See "**Weed Control**" sections of this booklet for rates to control specific weeds.

HAND HELD AND HIGH VOLUME EQUIPMENT

(use coarse sprays only)

For control of weeds and woody brush and trees listed in the "Weed Controlled" section of this label using knapsack sprayers or high volume spraying equipment utilizing handguns or other suitable nozzle arrangements. Unless otherwise specified, make a 0.75% solution of this product in water (0.75 litre of this product in 100 litres of water) and apply to foliage of vegetation to be controlled. For best results, use a 1.5% solution (1.5 litres of this product in 100 litres of water) on harder to control perennials such as field bindweed, hemp dogbane, milkweed and Canada thistle.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of runoff. Hand gun applications should be properly directed to avoid spraying desirable plants.

SELECTIVE EQUIPMENT

Selective equipment such as **WIPER** and **ROLLER** applicators can be used for weed control in soy and dry beans, orchards, vineyards, cranberries, strawberries and non-crop areas. For information regarding use of this product with selective equipment, refer to "**Selective Equipment**" section of this label.

AERIAL EQUIPMENT

Aerial Equipment can be used for cropland and non-cropland application only as indicated in this label. For further information, refer to specific aerial application sections under each use.

WEEDS CONTROLLED

This product controls many annual and perennial grasses, broadleaf weeds, and woody brush and trees when applied as recommended and under conditions described. For information on how to control specific weeds including herbicide rate refer to the "**Annual Weed Control**" and "**Perennial Weed Control**" sections of this label. The following is a partial list of weeds controlled:

ANNUAL WEEDS

Annual Grasses

Barnyard Grass

Echinochloa crusgalli

Blue Grass (annual)

Poa annua

Crab Grass (large)

Digitaria sanguinalis

Crab Grass (smooth)

Digitaria ischaemum

Downy Brome

Bromus tectorum

Fall Panicum

Panicum dichotomiflorum

Giant Foxtail

Setaria faberii

Green Foxtail

Setaria viridis

Persian Darnel

Lolium persicum

Volunteer Barley

Hordeum spp.

Volunteer Corn

Zea Mays

Volunteer Wheat

Triticum spp.

Wild Oats

Avena fatua

Wild Proso Millet

Panicum miliaceum

Yellow Foxtail

Setaria glauca

Other

Dodder

Cuscuta spp.

Annual Broadleaf Weeds

Chickweed

Stellaria media

Cleavers

Galium aparine

Cocklebur

Pennsylvania Smartweed

Polygonum pensylvanicum

Prickly Lettuce

Lactuca scariola

Ragweed (common)

Xanthium strumarium
Corn Spurry
Sparganium angustifolium
Cowcockle
Saponaria vaccaria
Eastern Black Flowering Nightshade
Solanum elaeagnifolium
Fleabane (Canada)
Erigeron canadensis
Flixweed
Descurainia sophia
Green Smartweed
Polygonum scabrum
Hempnettle
Galeopsis tetrahit
Kochia
Kochia scoparia
Lady's-Thumb
Polygonum persicaria
Lamb's-Quarters (common)
Chenopodium album
Narrow-leaved Hawk's Beard
Crepis tectorum
Narrow-leaved Vetch
Vicia angustifolia
Night-flowering Catchfly
Silene noctiflora

Ambrosia artemisiifolia
Redroot Pigweed
Amaranthus retroflexus
Round-Leaved Mallow
Malva pusilla
Russian Thistle
Salsola pestifer
Shepherd's Purse
Capsella bursa-pastoris
Smooth Pigweed
Amaranthus hybridus
Sowthistle (annual)
Sonchus oleraceus
Stinkweed
Thlaspi arvense
Storksbill
Erodium cicutarium
Volunteer Canola
Brassica spp
Volunteer Flax
Linaria spp
Wild Buckwheat
Polygonum convolvulus
Wild Mustard
Sinapsis arvensis
Wild Tomato
Solanum triflorum
Velvetleaf
Abutilon theophrasti

PERENNIAL WEEDS

Perennial Grasses / Sedges

Blue Grass (Canada)
Poa compressa
Blue Grass (Kentucky)
Poa pratensis
Brome Grass (smooth)
Bromus inermis
Cattail (common)
Typha latifolia

Foxtail Barley
Hordeum jubatum
Quackgrass
Agropyron repens
Yellow Nutsedge
Cyperus esculentus
Wire-stemmed Muhly
Muhlenbergia frondosa

Perennial Broadleaved Weeds

Alfalfa
Medicago spp.
Cottontop
Eriophorum chamissonis
Curled Dock
Rumex crispus
Dandelion
Taraxacum officinale
Field Bindweed
Convolvulus arvensis
Hemp Dogbane
Apocynum cannabinum
Hoary Cress
Cardaria draba
Knotweed (Japanese)
Polygonum cuspidatum

Milkweed (common)
Asclepias syriaca
Poison Ivy
Rhus radicans
Purple Loosestrife
Lythrum salicaria
Sow Thistle (perennial)
Sonchus arvensis
Thistle (Canada)
Cirsium arvense
Toad Flax
Linaria vulgaris
Wormwood (Absinth)
Artemisia absinthium

Woody Brush And Trees

Alder

Alnus spp.

Birch

Betula spp.

Broadleaved meadowsweet

Spiraea latifolia

Canadian rhododendron

Rhododendron canadenses

Cedar

Thuja spp.

Cherry

Prunus spp.

Douglas Fir

Pseudotsuga spp.

Hemlock

Tsuga spp.

Maple

Acer spp.

Mountain-fly honeysuckle

Lornica villosa

Pine

Pinus spp.

Poplar

Populus spp.

Raspberry / Salmonberry

Rubus spp.

Sheep laurel

Kalmia angustifolia

Snowberry (Western)

Symphoricarpos occidentalis

Sweet fern

Comptonia peregrina

Willow

Salix spp.

Withrod

Viburnum cassinoides

CROPLAND USES

CROPLAND USES INCLUDE:

In cropping systems before planting of all crops; in minimum tillage systems, post emergent in glyphosate tolerant soybean, canola and corn; preharvest applications in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), peas, lentils, dry beans, soybeans and forages; in pasture renovation; in forage, legume and grass establishments; in tree crops including apple, pear, cherry, plum, peach, apricot, filbert, hazelnut, walnut, chestnut; in grapes, cranberries, blueberries and strawberry; in sugar beets; in tree plantings; and grasses for seed production.

ALWAYS READ PRECAUTIONARY STATEMENTS, GENERAL INFORMATION and MIXING and APPLICATION PRECAUTIONS PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

When applied as a tank-mix combination, read and observe all label directions, including rates and restrictions for each product used in the tank-mix. Follow the more stringent label precautionary measures for mixing, loading and applying stated on both product labels.

ANNUAL WEED CONTROL

The following tables provide rates and specific application instructions for control of the annual weeds listed.

ANNUAL WEED CONTROL WITH VP480 HERBICIDE

RATE L/HA	GROWTH STAGE	WEEDS CONTROLLED	COMMENTS (Apply in 50 - 100 L/ha water)
0.56	weeds up to 8 cm in height	wild oats, green foxtail, volunteer barley, volunteer wheat	for wild oats apply at 1 - 3 leaf stage add 350 mL of the surfactant Agral 90, or Ag Surf, or Companion™.
		volunteer canola (rapeseed), wild mustard, lady's-thumb, stinkweed	for heavy wild oat infestations use 0.75 L/ha rate.

0.75	weeds 8 cm to 15 cm in height	all annual grasses listed above all annual broadleaved weeds listed above plus flixweed [†] and kochia [†]	add 350 mL of surfactant registered for use as listed above. [†] suppression only. Refer to higher rates of this table or tank-mix table for control options.
0.94 - 1.4	weeds up to 15 cm in height	all annual grasses listed above plus downey brome, giant foxtail, and Persian dandel all annual broadleaved weeds listed above plus chickweed, cleavers, shepherd's purse, lamb's quarters, redroot pigweed, hempnettle, flixweed, Russian thistle, volunteer flax, common ragweed [†] , Canada fleabane [†] , wild buckwheat ^{††} , narrow-leaved hawk's beard ^{†††} ,	no surfactant required for tank-mix weed control options see annual weed control with tank mixture section [†] DO NOT use these rates on plants greater than 8 cm in height ^{††} for 3 - 4 leaf stage use 1.4 L/ha rate ^{†††} for weeds 8 cm to 15 cm in height use 1.4 L/ha rate
1.69	weeds up to 15 cm in height	all annual grasses listed above plus crab grass and annual blue grass. all annual broadleaved weeds listed above plus kochia, prickly lettuce, annual sow thistle, and narrow-leaved vetch	for additional annual broadleaved weed control options, refer to tank-mix table
2.63	weeds over 15 cm in height	all annual grasses and broadleaved weeds listed above	for additional annual broadleaved weed control options refer to tank-mix table

NOTE: For spot treatment, 0.56 – 2.63 L/ha is approximately equivalent to 6-26 mL/100 m², respectively.

ANNUAL WEED CONTROL WITH VP480 HERBICIDE TANK MIXTURES FOR SUMMERFALLOW & MINIMUM TILLAGE SYSTEMS

TANK MIXTURES	RATE L/ha	WEEDS CONTROLLED	COMMENTS (Apply in 50 - 100 L/ha water; add 350 mL/ha of surfactant)
VP480 Herbicide	0.56 – 0.75	Volunteer cereal, wild oats, green foxtail,	This tank-mix is registered for summerfallow use only . Weeds should be less than 15 cm tall and actively growing for best results.
+ Banvel II	+ 0.29	Volunteer canola (rapeseed), wild mustard, flixweed [†] , lamb's quarters, lady's thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed ^{††} , wild buckwheat ^{††} .	Use higher rate if weeds are beyond 8 cm in height. [†] VP480 Herbicide applied at 0.75 L/ha rate only. ^{††} Suppression only. See other tank mixtures for control options.

<p>VP480 Herbicide</p> <p style="text-align: center;">+</p> <p>Pardner</p>	<p>0.56 – 0.75</p> <p style="text-align: center;">+</p> <p>1.25</p>	<p>Volunteer cereals, green foxtail, volunteer canola (rapeseed), wild mustard, lady's thumb, stinkweed, wild buckwheat[†]</p> <p>Redroot pigweed^{††}, kochia^{††}, wild oats^{††}</p>	<p>This tank-mix is registered only for use in summerfallow, and prior to wheat, oats and barley in minimum tillage systems.</p> <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>[†] use VP480 Herbicide at 0.75 L/ha rate only for wild buckwheat control.</p> <p>^{††} 0.75 L rate, suppression only. See other tank mixtures for control options.</p>
<p>VP480 Herbicide</p> <p style="text-align: center;">+</p> <p>2,4-D#</p>	<p>0.56 – 0.75</p> <p style="text-align: center;">+</p> <p>1.2</p>	<p>Volunteer cereals, wild oats[†] and green foxtail[†] volunteer canola (rapeseed), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia.</p> <p>Lamb's quarters^{††}, Russian thistle^{††}.</p>	<p>This tank-mix is registered for summerfallow use only.</p> <p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height</p> <p>[†] use VP480 Herbicide at 0.75 L/ha rate only for wild oat and green foxtail control.</p> <p>^{††} suppression only. See other tank mixtures for control options.</p>
<p>VP480 Herbicide</p> <p style="text-align: center;">+</p> <p>2,4-D ##</p>	<p>0.94-1.4 + 0.6-0.9⁴ or 1.2-1.5⁵</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, and Persian dandel.</p> <p>Volunteer canola, (rapeseed) (non-glyphosate tolerant), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia, lamb's-quarters, hempnettle, Russian thistle, volunteer flax, common ragweed[†], Canada fleabane, wild buckwheat^{††}, narrowleaved hawk's beard^{†††}</p> <p>Glyphosate tolerant volunteer canola (1-4 leaf stage)⁴, bluebur⁴, burdock⁴, cocklebur⁴, common plantain⁴, daisy fleabane⁴, false flax⁴, false ragweed⁴, goat's beard⁴, mustards⁴ (except dog and tansy), prickly lettuce⁴, ragweeds⁴, Russian pigweed⁴, shepherd's purse⁴, stinging</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>No surfactant required.</p> <p>[†] DO NOT use these rates on plants greater than 8 cm in height.</p> <p>^{††} For 3-4 leaf stage use 1.4 L/ha rate.</p> <p>^{†††} For weeds 8 cm to 15 cm in height use 1.4 L/ha rate.</p> <p>⁴ 2,4-D at 0.6 – 0.9 L/ha (280 – 420 g ai/ha).</p> <p>⁵ 2,4-D at 1.2 – 1.5 L/ha (560 – 700 g ai/ha).</p> <p>Use this tank mix prior to seeding or after seeding but before crop emergence in wheat, winter wheat, barley and rye.</p>

		<p>nettle⁴, sweet clover⁴, thymeleaved spurge⁴, wild radish⁴, wild sunflower⁴</p> <p>Glyphosate tolerant volunteer canola (4-6 leaf stage)⁵, annual sow thistle⁵, common chickweed⁵, common purslane⁵, dog and tansy mustard⁵, oakleaved goosefoot⁵, groundsel⁵, hairy galinsoga⁵, hawkweed⁵, heal-all⁵, knotweed⁵, peppergrass⁵, pineapple weed⁵, prostrate pigweed⁵, purslane⁵, sheep sorrel⁵, smartweed⁵, tumble pigweed⁵, velvetleaf⁵, volunteer canola⁵</p>	
<p>VP480 Herbicide + MCPA### 500 g/L formulation, if another formulation is used, adjust rate accordingly</p>	<p>0.94-1.4 + 0.5 –0.7¹ OR 0.5 –1.0²</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, and Persian darnel.</p> <p>Volunteer canola (rapeseed) (non-glyphosate tolerant), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed[†], Canada fleabane, wild buckwheat^{††}, narrowleaved hawk's beard^{†††}</p> <p>Volunteer glyphosate tolerant canola (1-4 leaf stage)^{1,2}, bluebur³, burdock³ (before 4 leaf stage), false flax³, flixweed³, lamb's quarters³, mustards³ (except dog and tansy), prickly lettuce³, ragweeds³, redroot pigweed³, Russian pigweed³, shepherd's purse³, stinkweed (field pennycress)³, vetch³, wild radish³, wild sunflower³</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>No surfactant required.</p> <p>† DO NOT use these rates on plants greater than 8 cm in height.</p> <p>†† For 3-4 leaf stage use 1.4 L/ha rate.</p> <p>††† For weeds 8 cm to 15 cm in height use 1.4 L/ha rate.</p> <p>¹MCPA amine at 0.5 – 0.7 L/ha (250-350 g ai/ha) prior to peas.</p> <p>² MCPA at 0.5 – 1.0 L/ha (250- 500 g ai/ha) prior to wheat, barley, oats, corn (field and sweet)###, rye and flax.</p> <p>³ MCPA at 0.7 – 1.0 L/ha (350 – 500 g ai/ha) only.</p> <p>Use this tank mix prior to seeding in wheat, barley, rye, oats, corn (field and sweet)###, flax, and field peas###.</p>
<p>VP480 Herbicide + Buctril M herbicides</p>	<p>0.94-1.4 + 0.5 –1.0¹</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, and Persian darnel.</p> <p>Volunteer canola (rapeseed) (non-glyphosate tolerant), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>No surfactant required.</p> <p>† DO NOT use these rates on plants greater than 8 cm in height.</p>

		<p>quarters, hempnettle, Russian thistle, volunteer flax, common ragweed[†], Canada fleabane, wild buckwheat^{††}, narrowleaved hawk's beard^{†††}</p> <p>Volunteer glyphosate tolerant Canola (1-4 leaf stage)^{1,2}</p> <p>Seedlings up to the 4-leaf stage²: green smartweed, pale smartweed, lady's thumb, cow cockle, redroot pigweed, flixweed, bluebur, shepherd's purse, kochia³, Russian thistle³, scentless chamomile⁴, volunteer sunflower, night flowering catchfly, cocklebur, velvetleaf⁵, ball mustard, American nightshade</p> <p>Seedlings up to the 6-leaf stage²: wild tomato Seedlings up to the 8-leaf stage²: wild buckwheat, tartary buckwheat, common buckwheat, stinkweed, wild mustard, wormseed mustard, lamb's quarters, common ragweed, common groundsel</p> <p>Perennials (top growth)²: Canada thistle, perennial sow thistle</p>	<p>†† For 3-4 leaf stage use 1.4 L/ha rate.</p> <p>††† For weeds 8 cm to 15 cm in height use 1.4 L/ha rate.</p> <p>¹ Buctril M at 0.5 – 1.0 L/ha (280-560 g ai/ha) for all crops listed.</p> <p>² Buctril M at 1.0 L/ha (560 g ai/ha only).</p> <p>³ Spray before plants are 5 cm high.</p> <p>⁴ Spring annuals only.</p> <p>⁵ Spray before plants are 8 cm high.</p> <p>Use this tank mix prior to seeding in wheat, barley, rye, oats, corn, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, Timothy, orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow brome grass, seedling streambank wheatgrass and reed canary grass.</p>
<p>VP480 Herbicide + MCPA Amine (500 g/L formulation, if another formulation is used, adjust rate accordingly)</p>	<p>0.94-1.4 + 0.5 –0.7</p>	<p>Volunteer cereals, wild oats, green foxtail, downy brome, giant foxtail, and Persian darnel.</p> <p>Volunteer canola (rapeseed) (non-glyphosate tolerant), wild mustard, flixweed, redroot pigweed, lady's thumb, stinkweed, kochia, lamb's quarters, hempnettle, Russian thistle, volunteer flax, common ragweed[†], Canada fleabane, wild buckwheat^{††}, narrowleaved hawk's beard^{†††}</p> <p>Volunteer glyphosate tolerant canola (1-4 leaf stage)³, bluebur⁴, burdock⁴ (before 4 leaf stage), false flax⁴, flixweed⁴, lamb's quarters⁴, mustards⁴ (except dog and tansy), prickly lettuce⁴, ragweeds⁴, redroot pigweed⁴, Russian pigweed⁴, shepherd's</p>	<p>Weeds should be less than 15 cm tall and actively growing for best results.</p> <p>Use higher rate if weeds are beyond 8 cm in height.</p> <p>No surfactant required.</p> <p>[†]DO NOT use these rates on plants greater than 8 cm in height.</p> <p>†† For 3-4 leaf stage use 1.4 L/ha rate.</p> <p>††† For weeds 8 cm to 15 cm in height use 1.4 L/ha rate.</p> <p>³ MCPA amine at 0.5 – 0.7 L/ha (250 – 350 g ai/ha) prior to lentils and chickpeas.</p> <p>⁴ MCPA amine at 0.7 L/ha (350 g ai/ha) only.</p> <p>• Use this tank mix prior to seeding in lentil</p>

		purse ⁴ , stinkweed ⁴ (field pennycress), vetch ⁴ , wild radish ⁴ , wild sunflower ⁴	and chickpea.
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For foxtail barley suppression, refer to “**Annual Weed Control**” table

0.56 kg ai/ha of 2,4-D

#, ## Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

Use only amine formulations of MCPA prior to seeding in corn and field peas.

ADDITION OF SURFACTANT

All VP480 Herbicide tank mixtures for annual weed control require the addition of the surfactant Agral 90, or Ag Surf, or Companion. Surfactant should be added at a rate of 350 mL per hectare, in 50 – 100 L of clean water.

Additional Important Information for Annual Weed Control

Allow at least 1 day after treatment before tillage

Annual weeds generally will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds, in some situations.

For additional information and precautions, refer to the "General Information" and "Mixing and Application" sections of this label.

WEED CONTROL IN OPTIMUM™ GLY CANOLA VARIETIES

WARNING: APPLY VP480 HERBICIDE ONLY TO OPTIMUM GLY CANOLA VARIETIES USING THE RATES OUTLINED IN THE TABLE BELOW. For all other glyphosate tolerant canola, please refer to the section following on WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA

NOTE: ALWAYS USE PEDIGREED (I.E. CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS OPTIMUM GLY GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to the “General Information” and “Mixing and Application” sections of the VP480 Herbicide label.
- Apply VP480 Herbicide in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visual yellowing may occur when VP480 Herbicide is applied at the late application 4 to 6 leaf stage of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT APPLY BY AIR

The following table describes the rate and specific application instructions for control of annual and perennial weeds in Optimum Gly glyphosate tolerant canola varieties.

WEED CONTROL IN OPTIMUM GLY CANOLA VARIETIES

Rate (L/ha)	Growth Stage Of Crop	Weeds Controlled	Comments (Apply in 50 - 100 L/ha water)
0.60 - 1.4 Single application	Emergence to first flower*	Annual Grasses wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass	† The 0.60 L/ha rate can be used for control of shepherd's purse, cow cockle, and night-flowering catchfly at

		<p>Annual Broadleaves stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's-quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, cleavers, wild buckwheat, shepherd's purse†, cow cockle†, night-flowering catchfly†, smartweed†, storksbill, flixweed, narrow-leaved hawk's beard</p> <p>Perennials (suppression) Canada thistle, Perennial sow thistle, Dandelion</p> <p>Perennials (season long control) Quackgrass</p>	<p>the 1-3 leaf stage of the crop or for control of smartweed at the 4-6 leaf stage.</p> <p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p>
1.4 Single application	Emergence to first flower*	All the above weeds plus: Perennials (season-long control) Canada thistle, foxtail barley, and perennial sow thistle	
0.94 Sequential applications	Emergence to first flower*	All the above weeds plus: Annual Broadleaves Round-leaved mallow	For sequential applications, ensure the crop has not advanced beyond the recommended growth stage.
1.88 Single application	Emergence to first flower*	All the above weeds plus: Foxtail barley, smooth pigweed, common ragweed, cocklebur, eastern black nightshade, Pennsylvania smartweed, foxtail (yellow and giant), fall panicum, wild proso millet, crabgrass (smooth and large), velvet leaf, biennial wormwood††, wire-stemmed muhly, volunteer adzuki beans†††.	<p>†† Biennial wormwood should be at 2-8 leaf stage and actively growing.</p> <p>††† For control of volunteer adzuki beans (unifoliate to 4th trifoliate leaf stage) apply 1.88 L/ha. A second 1.88 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliate to fourth trifoliate leaf stage and actively growing.</p>
1.88 Sequential applications	Emergence to first flower*	All the above weeds plus: Perennials (season-long control) Dandelion Common Milkweed Field Bindweed Yellow nutsedge Horsenettle Tall waterhemp Bur cucumber	<p>A sequential application may be made at least 2 weeks after the first application.</p> <p>A second 1.88 L/ha application may be used for late weed flushes emerging after the initial treatment.</p> <p>Common milkweed should be 15-60 cm in height and actively growing.</p> <p>Yellow nutsedge should be 5-15 cm in height and actively growing.</p>
3.75 Single application	Emergence to 6 leaf	All the above weeds.	One application allowed in crop per season

*First flower is when 50% of the plants in the field have no more than one flower.
Ensure the crop has not advanced beyond the recommended growth stage for all applications.

Guidelines:

Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.

Maximum 3.75 L/ha is allowed for postemergence use.

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA

WARNING: APPLY VP480 HERBICIDE ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E. CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to the “General Information” and “Mixing and Application” sections of the VP480 Herbicide label.
- Apply VP480 Herbicide in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visual yellowing may occur when VP480 Herbicide is applied at the late application 4 to 6 leaf stage of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT APPLY BY AIR

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA

Rate (L/ha)	Growth Stage Of Crop	Weeds Controlled	Comments (Apply in 50 - 100 L/ha water)
0.60 - 1.4	0 to 6 leaf	<p>Annual Grasses wild oats, green foxtail, volunteer barley, volunteer wheat, barnyard grass</p> <p>Annual Broadleaves stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's-quarters, non-glyphosate tolerant volunteer canola (rapeseed), hempnettle, lady's thumb, kochia, chickweed, corn spurry, wild tomato, cleavers[†], wild buckwheat[†], shepherd's purse[†], cow cockle[†], night-flowering catchfly[†], smartweed[†], storksbill[†], flixweed[†], narrow-leaved hawk's beard[†], round-leaved mallow^{†††}</p> <p>Perennials (suppression)^{††}</p> <p>Canada thistle, Perennial sow thistle, Dandelion</p> <p>Perennials (season long control)</p> <p>Quackgrass^{††}, foxtail barley ^{†††}Canada thistle^{††††}, Perennial sow thistle^{††††}</p>	<p>No additional surfactant is required</p> <p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p> <p>Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>[†] Use the 0.94 L/ha rate for control of these weeds at all crop growth stages. The lower rate can be used for control of shepherd's purse, cow cockle and night-flowering catchfly at the 1-3 leaf stage of the crop, or for control of smartweed at the 4-6 leaf stage.</p> <p>^{††} A single application at the 0.94 L/ha rate is required</p> <p>^{†††} Sequential applications at the 0.94 L/ha rate are required.</p> <p>^{††††} Sequential applications at the 0.94</p>

			<p>L/ha rate are required or a single application of 1.4 L/ha.</p> <p>For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. Maximum 1.88 L/ha is allowed for the postemergence use.</p>
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VP480 Herbicide plus Lontrel™ 360 Herbicide Tank Mixture

For hard-to-control weeds (see list below) in glyphosate tolerant canola apply a tank mixture of 0.28 L/ha of Lontrel 360 with 0.94 L/ha of VP480 Herbicide in 100 L of water per hectare. Apply when canola is in the 2 - 6 leaf stage. Refer to the Lontrel 360 and the VP480 Herbicide labels for lists of other weeds controlled, timing of application, water volumes and use precautions. **Apply this tank-mixture in glyphosate tolerant canola only.**

Weeds Controlled

- Canada thistle (season-long top growth)
- dandelions <15cm diameter (season-long top growth)
- dandelions >15cm diameter (suppression)
- perennial sowthistle (season-long top growth)
- wild buckwheat

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN (ROUNDUP READY®2 YIELD®) SOYBEAN VARIETIES

WARNING: APPLY VP480 HERBICIDE ON ROUNDUP READY2 YIELD SOYBEAN VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SOYBEAN SEED DESIGNATED AS ROUNDUP READY2 YIELD. SOYBEANS WHICH ARE NOT DESIGNATED AS ROUNDUP READY2 YIELD WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN

Rate (L/ha)	Growth Stage of Crop	Weeds Controlled*	Comments (use 100-200 L/ha water volumes)
1.88	First trifoliolate leaf stage through to flowering.	velvetleaf, common ragweed, common lambsquarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, eastern black flowering nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, Russian thistle, non-glyphosate	<p>† A single application of 1.88 L/ha will provide suppression only.</p> <p>†† For control of common milkweed, yellow nutsedge, round-leaved mallow and field bindweed, a second sequential application may be used at least 2 weeks after the first application.</p> <p>A second 1.88 L/ha application may be used for late weed flushes emerging after the initial treatment.</p> <p>Any second application made must be applied no later than the flowering stage of the soybean crop.</p>

		<p>tolerant canola (rapeseed), hemp nettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepard's purse, cow cockle, night flowering catchfly, stork's bill, flixweed, narrow-leaved hawk's-beard</p> <p>common milkweed^{†,††}, yellow nutsedge^{†,††}, field bindweed^{††}, perennial sow thistle, Canada thistle, wire-stemmed muhly</p> <p>Bur cucumber^{†††} (<i>Sicyos angulatus</i>)</p> <p>Volunteer adzuki beans^{††††} (<i>Vigna angularis</i>)</p> <p>Biennial wormwood^{†††††} (<i>Artemisia biennis</i>)</p>	<p>Common milkweed should be 15-60 cm in height and actively growing.</p> <p>Yellow nutsedge should be 5-15 cm in height and actively growing.</p> <p>Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing.</p> <p>Wire-stemmed muhly should be 10-20 cm in height and actively growing. Plants not fully emerged at the time of application will escape treatment.</p> <p>††† Sequential applications of 1.88 L/ha followed by 1.88 L/ha at the 1-18 leaf stage. Applications should be at least 2 weeks apart for best results.</p> <p>†††† For control of volunteer adzuki beans (unifoliolate to the 4th trifoliolate leaf stage) apply 1.88 L/ha. A second 1.88 L/ha application may be used for late flushes emerging after the initial treatment. Adzuki beans should be at unifoliolate to 4th trifoliolate leaf stage and actively growing.</p> <p>††††† For control of biennial wormwood – apply only one application per season at 1.88 L/ha. Biennial wormwood should be at 2-8 leaf stage and actively growing.</p>
3.75	First trifoliolate leaf stage through to flowering.	All weeds listed above plus horse-nettle ^{††††††} and tall waterhemp ^{††††††}	<p>Only one application per season at 3.75 L/ha.</p> <p>Common milkweed should be 15-60 cm in height and actively growing.</p> <p>Yellow nutsedge should be 5-15 cm in height and actively growing.</p> <p>Plants not fully emerged at the time of application will escape treatment.</p> <p>†††††† For season-long control of horse nettle (<i>Solanum carolinense</i>) (2 to 12- leaf stage) or, for control of tall waterhemp (<i>Amaranthus tuberculatos</i>) (up to and including the 18-leaf stage) apply 3.75 L/ha. Alternatively, sequential applications of 1.88 L/ha followed by 1.88 L/ha may be applied. Applications should be at least 2 weeks apart for best results.</p> <p>For the control of Tall waterhemp use the</p>

			higher rate if weeds are beyond the 6-leaf stage.
5.21	First trifoliolate leaf stage through to flowering.	All weeds listed above, plus control of volunteer alfalfa and bromegrass	<p>Only one application per season at 5.21 L/ha.</p> <p>Alfalfa should be 9 or more leaves and be at least 10-15 cm tall.</p> <p>Bromegrass should have at least 3-5 leaves and be at least 10-15 cm tall.</p> <p>Short term yellowing may occur in sprayer overlap areas with the 5.21 L/ha application rate. This effect is temporary and will not influence crop growth or yield.</p>

*Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of annual weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN

WARNING: APPLY VP480 HERBICIDE ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY. DO NOT APPLY THE 5.21 L/HA RATE TO GLYPHOSATE TOLERANT SOYBEAN VARIETIES THAT DO NOT CONTAIN ROUNDUP READY®2 YIELD® SOYBEAN TRAIT.

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEAN

Rate (L/ha)	Growth Stage of Crop	Weeds Controlled†	Comments (use 100-200 L/ha water volumes)
1.88	First trifoliolate leaf stage through to flowering.	velvetleaf, common ragweed, common lambsquarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, ladythumb, Pennsylvania smartweed, eastern black flowering nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, milkweed†, yellow nutsedge†, fall panicum, wild proso millet	<p>A second application may be used for late weed flushes emerging after the initial treatment</p> <p>† suppression only.</p> <p>This second application must be made no later than the flowering stage of the soybean.</p>
1.88-3.75	First trifoliolate leaf stage through to flowering.	Perennial sow thistle, Canada thistle, wire-stemmed muhly	A single application at the higher rate or a second (sequential) application of 1.88 L/ha will improve control in heavy weed infestations.

			<p>If sequential applications of 1.88 L/ha are used they should be at least 2 weeks apart for best results on perennial weeds.</p> <p>This second application must be made no later than the flowering stage of the soybean.</p> <p>Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing.</p> <p>Wire-stemmed muhly should be 10-20 cm in height and actively growing.</p> <p>Plants not fully emerged at the time of application will escape the treatment.</p>
3.75	First trifoliolate leaf stage through to flowering.	All weeds listed above, plus milkweed ^{††} , yellow nutsedge ^{††} , field bindweed ^{††}	<p>Only one application per season at 3.75 L/ha.</p> <p>†† Will also be controlled by sequential applications of 1.88 L/ha. Applications should be at least 2 weeks apart for optimum control.</p> <p>This second application must be made no later than the flowering stage of the soybean.</p> <p>Milkweed should be 15-60 cm in height and actively growing; nutsedge should be 5-15 cm in height and actively growing.</p> <p>Plants not fully emerged at the time of application will not be controlled</p>

† Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

VP480 Herbicide plus Pursuit Herbicide Tank Mixture

For added residual control of late germinating eastern black nightshade, common lamb's quarters, redroot pigweed, velvetleaf, fall panicum and wild proso millet, Pursuit herbicide may be tank mixed with VP480 Herbicide at a rate of 1.88 litres per hectare. Use 0.16 to 0.21 litres per hectare of Pursuit Herbicide and apply up to and including the 3rd trifoliolate leaf stage of the glyphosate tolerant soybeans in 100-200 litres per hectare of clean water. The higher rate is recommended for heavier infestations. This tank mix is recommended primarily for soybean systems with row spacings of 50 centimetres (20 inches) or more where a single application timing is desired.

Mixing: Add and mix Pursuit Herbicide as per instructions on the Pursuit Herbicide label and then add VP480 Herbicide as per instructions on this label.

A PHI of 100 days is required for the tank mix of VP480 Herbicide and Pursuit herbicide on glyphosate tolerant soybeans.

Only one application per season of VP480 Herbicide at 1.88 litres per hectare tank mixed with Pursuit herbicide at 0.16 to 0.21 litres per hectare is permitted.

Refer to the Pursuit herbicide label for further safety precautions and handling instructions.

VP480 Herbicide plus Assure II Tank Mixture

For control of volunteer glyphosate tolerant corn, Assure II Herbicide may be tank mixed with VP480 Herbicide. Use 1.88 – 3.75 litres per hectare VP480 Herbicide and 0.38 litre per hectare of Assure II Herbicide.

Apply in 100 – 300 litres per hectare of clean water.

Mixing: Add and mix Assure II Herbicide as per instructions on the Assure II Herbicide label and then add VP480 Herbicide as per instructions on this label.

This tank mix is to be applied when the crop is from the first trifoliolate leaf stage through flowering and when the volunteer glyphosate tolerant corn is at the 2-6 leaf stage.

A PHI (preharvest interval) of 80 days is required for the tank mix of VP480 Herbicide and Assure II Herbicide on glyphosate tolerant soybeans.

Refer to the Assure II Herbicide label for further safety precautions and handling

WEED CONTROL IN GLYPHOSATE TOLERANT CORN

WARNING: APPLY VP480 HERBICIDE ON GLYPHOSATE TOLERANT CORN VARIETIES ONLY. DO NOT APPLY THE 3.75 L/HA RATE TO GLYPHOSATE TOLERANT CORN VARIETIES THAT ARE NOT ROUNDUP READY®2 TECHNOLOGY OR EQUIVALENT.

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) CORN SEED DESIGNATED AS GLYPHOSATE TOLERANT. CORN WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

Rate (L/ha)	Growth Stage of Crop	Weeds Controlled†	Comments (use 100-200 L/ha water volumes)
1.88	Up to and including 8 leaf stage.	<p>Velvetleaf, common ragweed, common lambsquarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, ladythumb, Pennsylvania smartweed, eastern black flowering nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quackgrass, fall panicum, wild proso millet</p> <p>Wild oats, volunteer barley, volunteer wheat, stinkweed, wild mustard, Russian thistle, nonglyphosate tolerant canola (rapeseed), hempnettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, nightflowering catchfly, stork's-bill, flixweed, narrow-leaved hawk's beard</p>	<p>A second application may be used for late weed flushes emerging after the initial treatment.</p> <p>This second application must be made no later than the 8 leaf stage of the corn.</p>
1.88		Common milkweed, yellow nutsedge, roundleaved mallow, field bindweed	<p>For control of common milkweed, yellow nutsedge, roundleaved mallow and field bindweed use two applications of 1.88 L/ha.</p> <p>This second application must be made no later than the 8 leaf stage of the corn.</p> <p>Milkweed should be 15-60 cm in height and actively growing.</p> <p>Yellow nutsedge should be 5-15 cm in height and actively growing.</p>

1.88		Perennial sow thistle, Canada thistle, wire-stemmed muhly	<p>A second (sequential) application of 1.88 L/ha will improve control in heavy weed infestations.</p> <p>If sequential applications are used they should be at least 2 weeks apart for best results on perennial weeds.</p> <p>This second application must be made no later than the 8 leaf stage of the corn.</p> <p>Perennial sow thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing.</p> <p>Wire-stemmed muhly should be 10-20 cm in height and actively growing.</p> <p>Plants not fully emerged at the time of application will escape treatment.</p>
3.75	Up to and including 6 leaf stage	All weeds listed above	<p>Only one application per season at 3.75 L/ha</p> <p>Common milkweed should be 15-60 cm in height and actively growing.</p> <p>Yellow nutsedge should be 5-15 cm in height and actively growing.</p> <p>Plants not fully emerged at the time of application will escape treatment.</p>
1.88 VP480 Herbicide + 0.75–1.0 kg ai/ha atrazine†	Up to and including 5th leaf stage.	Residual control of lamb's-quarters, redroot pigweed, common ragweed	Tank mix should be used when only a single application timing is desired. Use higher rate of atrazine for heavier weed infestations.
1.88 VP480 Herbicide + 2.5-3.7 Marksman Herbicide	Up to and including 5th leaf stage.	Residual control of lamb's-quarters, redroot pigweed, common ragweed, velvetleaf	Tank mix should be used when only a single application timing is desired. Use higher rate Marksman Herbicide for heavier weed infestations.

† 0.75-1.0 kg ai atrazine/ha is equivalent to 1.56-2.08 L/ha of Aatrex Liquid 480

† Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

PERENNIAL WEED CONTROL

ALWAYS READ PRECAUTIONARY STATEMENTS, GENERAL INFORMATION and MIXING and APPLICATION SECTIONS PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

When applied as recommended under the conditions described, this product will control the perennial weeds listed in the following table:

PERENNIAL WEED CONTROL WITH VP480 HERBICIDE

WEED	APPLICATION			COMMENTS
	GROWTH STAGE	RATE (L/ha)	WATER VOLUME (L/ha)	
Quackgrass (control, light to moderate infestations)	3 to 4 green leaves or more	1.88	50 - 300	Apply in clean water using flat fan nozzles. Allow 3 or more days after treatment before tillage. Refer to " Quackgrass " notes for more information. For higher water volumes (i.e. 150 - 300 L/ha) an approved surfactant must be added at 0.5 litres per 100 litres of clean water (0.5% v/v). Refer to list of surfactants. See also below.
Quackgrass (long term control, heavy infestations, high water volumes)	3 to 4 green leaves or more	1.88 – 5.25	50 - 300	Allow 3 or more days after treatment before tillage. Rates higher than 1.88 L/ha will provide more consistent, longer term control, especially with heavier infestations and/or higher water volumes (i.e. 150-300 L/ha) Refer to " <u>Quackgrass</u> " notes for more information.
Canada Thistle	rosette stage (summer-fallow)	1.88	50 - 100	Apply in clean water using flat fan nozzles. Allow 10 or more days after treatment before tillage. Refer to notes in "Canada Thistle" section for more information.

Canada Thistle	bud stage or beyond	3.56 – 5.25	100 - 300	Allow 5 or more days after treatment before tillage.
Field Bindweed	full bloom or beyond	5.25 – 9	100 - 300	Allow 7 or more days after treatment before tillage.
Common Milkweed†	bud to full bloom (preharvest)	1.88	50 - 100	See preharvest application section Allow 7 or more days after treatment before tillage.
	bud to full bloom	9	100 - 300	Reduced control may occur after full bloom. Milkweed may not all be in the correct stage, therefore, repeat treatments may be required.
Toadflax	Vegetative Stage (summerfallow)	1.88	50-100	Apply in clean water using flat fan nozzles Allow 7 or more days after treatment before tillage in summerfallow
	Bud to Full Bloom (preharvest)			For more information, see summerfallow control, or preharvest control
Alfalfa	Early bud to full bloom stage. Fall applications only	2.8 – 3.75	50 - 300	Allow 5 or more days after treatment before tillage. Use the higher rates when alfalfa populations are high or when heavy grass infestations are also present. For spring applications and control in minimum tillage systems using a 2,4-D tank-mix
Dandelion	< 15 cm	1.88	50 - 100	Allow 3 or more days after treatment before tillage for all rates. Use the higher rate when infestations are heavy.
	> 15 cm	2.78 – 3.75	50 - 300	Refer to notes in Dandelion Section for more information.
	Rosette to full bloom (preharvest)	1.88	50 - 100	Allow 7 or more days after treatment before tillage. For more information, see preharvest control section.

Foxtail barley	Seedling to heading	1.88 – 3.75	50 -100	Allow a minimum of 1 day after treatment before tillage or seeding. Use higher rates for larger, more established plants, heavy infestations or if plants are stressed
Other Perennials (see perennial weeds listing)	early heading or early bud stage	5.25 – 9	100 - 300	Allow 7 or more days after application before tillage.

†**NOTE:** For spot treatment, mix 90 mL of product in 5 L clean water per 100 m². (1.88 – 9 L/ha is approximately equivalent to 19 – 90 L/100 m², respectively).

SPECIAL NOTES FOR PERENNIAL WEED CONTROL

QUACKGRASS

For **season-long control on fall tilled ground:** Apply 1.88 L/ha of this product in spring prior to seeding. Apply in 50 to 100 L/ha of clean water as described in the preceding table. Delay application until the majority of quackgrass plants have 4-5 green leaves. This stage usually occurs 1 to 4 weeks later on fall tilled ground than on undisturbed ground. Reduced control may result on ground tilled deeper than 15 cm.

NOTE:

This treatment will provide season-long control of quackgrass on fall tilled ground. Reduced control will be experienced versus this product on non-fall tilled ground. Repeat treatments may be necessary.

Applications on forages should be followed by tillage 3 days or later and should be made when good growing conditions exist.

If a frost has occurred, wait several days to determine if the quackgrass has recovered. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application. Do not apply after the first damaging frost in the fall.

Surfactant Information:

The following is a list of approved surfactants for use with VP480 Herbicide for control of quackgrass:
Agral 90
Ag Surf
Companion

Always refer to surfactant label for specific instructions regarding use of that product.

CANADA THISTLE

Control of Canada Thistle at the rosette stage: To ensure the proper timing of application the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 15th and August 1.
2. Allow the thistles to regrow for a minimum of 5 weeks until they are a minimum of 15cm in diameter and in the rosette stage of growth.

NOTE: Canada thistle can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost in the fall.

VP480 Herbicide plus Banvel II Tank Mixtures

For control of Canada thistle (and perennial sow thistle) in summerfallow or in post-harvest stubble, apply 1.28 L/ha VP480 Herbicide plus 1.25 L/ha Banvel II in 100 – 200 L/ha of clean water. In addition, add 350 mL/ha of a non-ionic surfactant registered for use with this product, such as Agral 90, Ag Surf, or Companion.

For best results in summerfallow, cultivate in the spring and apply when the majority of thistles are 15 cm to 25 cm tall and before the bud stage. Cultivate 3 weeks after application.

In post harvest stubble, apply this tank mixture to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE:

Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank mixture.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

TOADFLAX

Control of Toadflax in a Summerfallow Vegetative Stage

To ensure the proper timing of application, the following steps must be followed:

1. Conduct summerfallow tillage as usual and perform the last tillage operation between July 10-21.
2. Allow toadflax to regrow for a minimum of 4-5 weeks until they are minimum of 15 cm tall and at a lush green vegetative stage.

NOTE: Toadflax can be treated after a mild frost provided the leaves are still green and actively growing at the time of application. Do not apply after the first damaging frost.

DANDELION

Applications should be made up to and including bloom for best results. Follow-up control measures should be used to manage new dandelions germinating from seed to maintain control throughout the season.

ALFALFA CONTROL WITH 2,4-D TANK-MIX:

The addition of 2,4-D may improve alfalfa control in situations where control may be more difficult to obtain, such as in minimum tillage systems where populations are heavy, and with spring applications.

For fall control of established stands of alfalfa, apply 1.88 – 3.75 L/ha VP480 Herbicide – and 1.2 – 2.4 L/ha of any 500 g/L 2,4-D amine or low volatile ester formulation in 100 – 200 L water/ha. (Adjust product rates accordingly for other 2,4-D formulations).

For spring applications, use only the low rate of 2,4-D (i.e. 1.2 L/ha) and 1.88 – 3.75 L/ha VP480 Herbicide. Only cereal crops not underseeded to legumes may be planted following spring applications of this tank-mix, and a 14 day interval between application and planting is required.

Use the higher VP480 Herbicide rates when perennial grasses are prevalent.

ALL PERENNIAL WEEDS

Weed Stages: Weeds must be at the proper stage for effective control. Refer to "**Perennial Weed Control with VP480 Herbicide** "

Nozzle Type: For best results with conventional boom equipment apply this product with 50 to 300 L/ha of clean water using flat fan nozzles and no more pressure than 275 kPa.

Rhizome Dormancy: Reduced control may result if rhizomes have become dormant. Dormancy may occur if soil fertility is low and/or the land has not been tilled for several years.

Mowing Effects: Mowing prior to application will reduce effectiveness unless weeds are allowed to regrow to the proper stage before application.

Tillage Effects: Fall or spring tillage prior to spring applications and tillage between harvesting and fall applications will reduce the effectiveness on perennial weeds. Follow-up tillage after application should be delayed 5-7 days for best results (see Weed Control Table for specific tillage interval for each weed).

Rainfall Effects: Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

Regrowth from Germinating Seeds: This product only controls emerged plants. Repeat treatments or other weed control measures may be required to control weeds regenerating from seeds or other underground parts.

Frost Effects: Heavy frosts prior to application may reduce control. Do not apply after the first damaging frost in the fall.

CROPLAND SITUATIONS

ALWAYS READ PRECAUTIONARY STATEMENTS, GENERAL INFORMATION and MIXING and APPLICATION SECTIONS PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

This product can be applied as a broadcast spray or spot treatment prior to planting all crops, post harvest to annual crops, preharvest in wheat, barley, oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, soybeans, dry beans and forages, and in summerfallow. It may also be applied as a broadcast spray in glyphosate tolerant canola, soybean or corn (refer to sections on Weed Control in Glyphosate Tolerant Canola, Soybean or Corn). It can also be applied as a directed spray in orchards, vineyards, blueberries and strawberry, and using selective equipment in soy and dry beans, orchards, vineyards, cranberries and strawberry (refer to specific sections below for more information). **For specific instructions on weed control in the following cropping situations, always refer to the Annual and Perennial Weed Control sections for more information.**

Prior to Planting - All Crops

This product may be applied prior to planting all crops for control of emerged weeds listed on this label. Ensure weeds are at the desired stage at the time of application. This product does not provide pre-emergent weed control and newly germinating weeds may be a problem in the crop. **APPLY BEFORE SEEDING OR TRANSPLANTING.**

Post Harvest Stubble Treatment

This product may be applied in the fall as a postharvest stubble treatment for control of perennial weeds such as quackgrass and Canada thistle. Allow weeds to regrow to the desired stage (20-25 cm tall for quackgrass and Canada thistle) before application and ensure they have a high proportion of green coloration. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frosts prior to application may decrease control.

Spot Treatment (In-Crop)

This product can be applied as an in-crop spot treatment in barley, corn, oats, soybeans, wheat, strawberry, blueberry, forage grasses and legumes including seed production. Applications should be made using the same rates and at the same growth stages as listed in the weed control tables or use a 0.75% solution for annual weeds and quackgrass and a 1.5% solution for other perennial weeds (a 0.75% solution equals 0.75 litre VP480 Herbicide in 100 litres of spray solution). The 0.75 or 1.5 per cent solutions should be applied to

wet, but not run-off. Applications can be made using a boom sprayer, hose and handgun, or hand sprayer in accordance with instructions in the "Application Equipment" section.

Grazing Restrictions

Applications can be made up to heading of small grains, initial pod set on soy and dry beans, silking of corn and emergence of seed heads. The crop in the treated area will be killed. Take care to avoid drift for the same reason. **DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS FOR VP480 HERBICIDE TO TRANSLOCATE INTO ALL PLANT PARTS BEFORE GRAZING OR HARVESTING TREATED AREAS IN FORAGES.**

Summerfallow Treatment

This product, or labelled tank mixtures, may be applied in summerfallow to control weeds listed on this label. Ensure weeds are at the desired growth stage and actively growing at application for best results. Reduced control may result if weeds are drought stressed. Weeds will continue to germinate from seed throughout the growing season. Repeat treatments may be necessary to control later germinating weeds.

Minimum and Zero Tillage Cropping Systems (All Field Crops, including cereals, oilseeds, pulses, forages, corn and potatoes)

This product may be applied prior to seeding or after seeding, but before crop emergence for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Applications made too far in advance of seeding may allow weeds to emerge between application and crop emergence, as this product does not provide residual weed control.

Minimum and Zero Tillage Tank Mixtures

VP480 Herbicide plus bromoxynil (Pardner) can be applied prior to seeding or after seeding, but before crop emergence in **wheat, barley and oats**. Refer to "**Annual Weed Control with VP480 Herbicide Tank Mixtures**" table for information.

VP480 Herbicide plus Pursuit can be applied prior to, or after, seeding, but before crop emergence in soybeans. VP480 Herbicide will control emerged weeds listed on this label when applied as directed (refer to Annual and Perennial Weed Control sections). Pursuit will control weeds germinating from seed. Add the recommended rates of both products in 100 L of water/ha, following the instructions on the Pursuit herbicide label.

ALWAYS REFER TO THE PURSUIT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS. ONLY SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT AND WINTER WHEAT MAY BE PLANTED THE SEASON FOLLOWING A PURSUIT APPLICATION. WINTER WHEAT MAY BE PLANTED THE SAME YEAR AS A PURSUIT APPLICATION TO SOYBEANS, BUT NOT EARLIER THAN 120 DAYS AFTER THE APPLICATION.

DO NOT APPLY AFTER CROP EMERGENCE

VP480 Herbicide plus MCPA can be applied prior to seeding in wheat, barley, rye, oats, corn (field and sweet; MCPA amine only), flax and field peas (MCPA amine only). Refer to "**Annual Weed Control with VP480 Herbicide Tank Mixtures**" table for information.

VP480 Herbicide plus Buctril M can be applied prior to seeding in **wheat, rye, corn, barley, oats, flax, canary seed and seedling grasses (including brome grass, crested wheatgrass, intermediate wheat grass, slender wheatgrass, tall wheatgrass, Russian wild rye, Timothy, Orchard grass, creeping red fescue, meadow fescue, meadow foxtail, seedling tall fescue, seedling meadow bromegrass, seedling streambank wheatgrass and reed canary grass** Refer to "**Annual Weed Control with VP480 Herbicide Tank Mixtures**" table for information.

VP480 Herbicide plus MCPA amine can be applied prior to seeding in **lentil and chickpea** Refer to "**Annual Weed Control with VP480 Herbicide Tank Mixtures**" table for information.

Forage Legumes and Grasses

This product may be applied for control of emerged weeds prior to emergence of forage legumes and grasses. If the forages are to be under-seeded with a cover crop, this product must be applied prior to planting the cover crop.

Pasture Renovation

Use this product to control or suppress existing vegetation for zero-tillage seeding of legumes into established sod for pasture renovation. Delay spraying until weed growth is at least 20 cm in height and a maximum number of seedlings or shoots have emerged. Application can be made immediately before, during or after seeding, but before crop emergence.

Forage Seed Production

For spot treatment control of perennial weed problems such as quackgrass and Canada thistle in seed fields, apply as directed to vegetation that is at least 20 to 25 cm in height but before emergence of seed head. The crop in the treated areas will be killed. Take care to avoid drift outside target area for the same reason.

PRE-HARVEST CONTROL OF QUACKGRASS, CANADA THISTLE, MILKWEED, TOADFLAX and DANDELION; SEASON-LONG CONTROL OF PERENNIAL SOW THISTLE, AND HARVEST MANAGEMENT

For control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion; and season-long control of perennial sow thistle, VP480 Herbicide can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, dry beans, soybeans and forages. DO NOT apply to crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations. EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

VP480 Herbicide should be applied pre-harvest at 1.88 L/ha in 50 to 100 L/ha of clean water, by ground application only. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. For forage crops, apply this product at 1.88 – 3.75 L/ha 3-7 days prior to the last cut before rotation or forage renovation. Consult the table "Guidelines for Timing of Preharvest Applications" for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7-14 days (or 3-7 days for forage applications) before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

DO NOT APPLY BY AIRCRAFT

GUIDELINES FOR TIMING OF PREHARVEST APPLICATIONS

CROP(S)	PERCENT GRAIN MOISTURE	VISUAL SYMPTOMS
WHEAT/BARLEY/ OATS	Less than 30	Hard dough stage; a thumbnail impression remains on seed.
CANOLA	Less than 30	Pods are green to yellow; most seeds are yellow to brown.
FLAX (INCLUDING LOW LINOLENIC ACID VARIETIES)	Less than 30	Majority (75%-80%) of bolls are brown.
PEAS	Less than 30	Majority (75%-80%) of pods are brown.
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seeds rattle.
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in colour); 80%-90% leaf drop (original leaves).
SOYBEANS	Less than 30	Stems are green to brown in colour; pod tissue is dry and brown in appearance; 80%-90% leaf drop.
FORAGES	Not applicable	Normal stage for forage harvesting.

RESTRICTED USE AERIAL PREHARVEST APPLICATION FOR PRAIRIE PROVINCES ONLY (Including PEACE RIVER REGION OF B.C.)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized. For use only by aerial applicators and aerial application services approved by the provincial regulatory agency to apply this product with aerial application equipment. To qualify for consideration of provincial approval, the following requirements must be demonstrated to the provincial regulatory agency:

1. Aircraft used in the application of this product must have been configured and calibrated to acceptable standards at a recognized calibration (patternation) clinic within 20 months of the date of application. The spray system must not have been subjected to major changes (new nozzles, booms or configurations) since the calibration, and must meet critical drift management standards e.g. maximum boom width 65% of wing span; nozzle type, size and orientation to minimize drift and deliver droplet size VMD in the coarse (400-600 microns) or very coarse (600 - 1000 microns) range.
2. Aircraft used in the application of this product must carry a minimum of \$25,000 drift insurance in addition to any provincial requirements for general comprehensive insurance coverage.
3. Aerial application services applying this product must employ on staff at least one pilot applicator with at least 250 hours of actual aerial application time and a minimum of 100 hours within the last 24 month period. All pilots who do not meet the minimum experience standard must work under the direct daily supervision of a qualified pilot.

DIRECTIONS FOR USE

VP480 Herbicide may be applied with aerial application equipment for control of quackgrass, Canada thistle, common milkweed, toadflax and dandelion, and season-long control of perennial sow thistle. VP480 Herbicide can be applied prior to harvest of wheat, barley (including malting barley), oats, canola (rapeseed), flax (including low linolenic acid varieties), lentils, peas, dry beans, and soybeans. DO NOT apply to any crops if grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW DOWN ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

VP480 Herbicide should be applied at 1.88 L/ha in 20 - 50 L/ha of clean water with aerial application equipment. Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table "Guidelines for Timing of Preharvest Applications" for visual indicators of this stage in each crop. For the best weed control results quackgrass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7 - 14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

USE PRECAUTIONS

AVOID DRIFT ON TO IMPORTANT WILDLIFE HABITATS. EXTREME CARE MUST BE TAKEN WHEN APPLYING THIS PRODUCT TO PREVENT INJURING DESIRABLE PLANTS AND CROPS.

Apply only in wind conditions in compliance with local and/or provincial regulations. Do not apply when other climatic conditions, including lesser wind velocities, will allow significant drift to occur.

Coarse sprays are less likely to drift, therefore do not use nozzles or nozzle configurations which disperse spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. See # 1 of the Nature of Restrictions for additional details.

Do not overspray or allow drift on to bodies of water, wetlands[†] and/or wetland vegetation (e.g., sloughs, swamps, bogs, marshes, potholes), shelterbelts, woodlots and other cover on the edge of fields.

IN ORDER TO REDUCE THE DRIFT HAZARD TO NON-TARGET PLANTS AND AQUATIC VEGETATION IN THE HABITATS LISTED ABOVE, DO NOT APPLY WITHIN 100 METRES OF THE EDGE OF ANY OF THESE HABITATS.

Do not apply directly to roadside ditches, or apply under conditions that would favour drift into roadside ditches.

[†]A wetland is any land where the water table stands at or above the land surface for at least part of the year, and contains vegetation associated with wetlands such as bulrushes, sedges, cattails, etc.

Ensure uniform application - To avoid streaked, uneven or overlapped application, use appropriate marking devices, or equivalent electronic positioning systems (GPS).

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C 38412 may prevent corrosion.

Tree Plantings

Shelterbelts and Nursery Stock (Woody Ornamentals)

This product may be used to control listed annual or perennial weeds prior to planting, or as a post directed spray in established nurseries or shelterbelts of the following species:

Deciduous

Ash - Fraxinus spp.
Caragana - Caragana spp.
Cherry - Prunus spp.
Elm - Ulmus spp.
Lilac - Syringa spp.
Maple - Acer spp.
Mountain Ash - Sorbus spp.
Poplar - Populus spp.
Russian Olive - Elaeagnus spp.
Willow - Salix spp.

Coniferous

Fir – Abies spp.
Juniper - Juniperus spp.
Pine - Pinus spp.
Spruce - Picea spp.
Yew - Taxus spp.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

TREE, VINE and BERRY CROPS

This product is recommended for annual and perennial weed control in established vineyards or orchards, in blueberry, cranberry and strawberry, or for site preparation prior to transplanting tree and vine crops. Applications may be made with boom equipment, shielded sprayers, hand-held and high volume orchards guns, or with wiper applicator equipment (orchards, vineyards, cranberry and strawberry only). See the "Mixing and Application Equipment Information" section of this label and the following table for specific information on the use of equipment.

Repeat treatments may be necessary to control weeds originating from underground parts of untreated weeds or from seeds. This product does not provide residual or pre-emergent weed control. For subsequent weed control, follow a program using residual herbicides or use repeated applications of this product. Do not apply more than 26 litres of this product per hectare per year.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE SOLUTION, SPRAY, DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES, OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURED BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut and have not been allowed to regrow to the recommended stage for treatment.

WEED CONTROL IN TREE, VINE and BERRY CROPS

Crop	Rate (L/ha)	Pre-Harvest Interval (days)	Max. Appl. per Yr.	Weeds Controlled	Comments (Refer to annual weed control and perennial weed control sections for specific rates for weed control)
Apples Apricot Cherry (Sweet/sour) Peaches Pears Plums	1.69 - 9	30	3	Annual and perennial weeds	
Apples Grapes	Tank Mix 1.69 - 9 + Simazine 2.0 - 4.5 kg ai/ha	-	1	Annual and perennial weeds	Will provide season-long pre-emergent control Do not apply to coarse, sandy or gravelly soil Use according to the more restrictive label direction for each product in the mix DO NOT apply to orchards or vineyards that have been established less than 1 or 3 years, respectively Simazine rate is equivalent to 2.25 – 5.0 kg/ha Princep Nine-T, or 4.0-9.0 kg/ha Simadex
Grapes	1.69 – 9	14	3	Annual and perennial weeds	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape Suckering should be conducted within 2 weeks prior to application Do not apply to vines which have been established less than 3 years
Highbush (cultivated) blueberry	2.1 – 4.2	30	1	Quack-grass	Use as a directed spray, with no more than 275 kPa pressure
Lowbush blueberry	0.75 – 1.5% solution (spot application)	Apply in non-bearing year only	1	Woody brush	Apply as a directed spray in mid-summer of the vegetative (non-bearing) year See spot treatment section for instructions

Filberts Hazelnut (established plantations)	1.69 – 2.63	14	-	Annual weeds	Use as a directed spray, with no more than 275 kPa pressure
Walnut Chestnut Japanese heartnut	1.69 – 9	-	2	Annual and perennial weeds	Apply late spring and fall, post-harvest but prior to a killing frost Apply in 200-300 L water as a directed spray, using no more than 275 kPa pressure Apply alternatively as a 1.5% wiper solution (see Wiper Applications section)
Cranberry	15% Solution (0.75 L VP480 Herbicide + 4 L water)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators
Strawberry	0.75 – 1.5% solution (spot application) 25% solution (wiper application)	30	1	Emerged perennial weeds	Apply when weeds are at a susceptible growth stage (see perennial weed control section) See spot treatment section for instructions See wiper application section for instructions
Sugar beets	0.75 – 1.5% solution (spot application)	Treated crop MUST NOT be harvested	1	Dodder species	Apply when dodder is vigorously growing but before flowering. See spot treatment section for instructions.
Asparagus	0.94-1.88	7	1	Fall seeded rye grass	Apply in spring before emergence of crop shoots.

NOTE TO USER: READ THE FOLLOWING BEFORE USING THIS PRODUCT FOR THE INDICATED SPECIAL USE APPLICATIONS: (NORTH AMERICAN GINSENG).

The DIRECTIONS FOR USE for this product for the use(s) described on this label were developed by persons other than Dow AgroSciences Canada Inc. and accepted for registration by Health Canada under the User Requested Minor Use Label Expansion program.

Dow AgroSciences Canada Inc. itself makes no representation or warranty with respect to performance (efficacy) or crop tolerance (phytotoxicity) claims for this product when used on the crop(s) listed on this label.

Accordingly, the Buyer and User assume all risks related to performance and crop tolerance arising, and agree to hold Dow AgroSciences Canada Inc. harmless from any claims based on efficacy and/or phytotoxicity in connection with the use(s) described on this label.

DIRECTIONS FOR USE

ALWAYS REFER TO THE PRODUCT LABEL FOR FURTHER INFORMATION ON WEEDS CONTROLLED, APPLICATION DIRECTIONS, AND USE PRECAUTIONS.

NORTH AMERICAN GINSENG

New Gardens (British Columbia only): Apply this product in the fall after seeding but before freeze-up in new gardens only to control volunteer cereals. Apply when weeds are at the growth stages listed on the product label. Use a single application of 1.88 litres per hectare in 50 to 100 litres water per hectare. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

Existing/Established Gardens: Apply this product in the spring before the crop has emerged from the soil. Apply when weeds are at the growth stages described in the product label. A maximum of two 1.88 litres per hectare applications in 50 to 100 litres water per hectare may be made in a season. **DO NOT USE A FALL APPLICATION IN ESTABLISHED/EXISTING GARDENS.**

SELECTIVE EQUIPMENT

WIPER APPLICATORS

This product may be applied with a wiper applicator, after dilution and thorough mixing with water, to listed weeds in soy and dry beans, grapes, orchards, cranberries and strawberry. Applications must be made before initial pod set in soy and dry beans. (It may also be used in any industrial, tree planting and non-crop site specified on this label.)

A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution. Wiper applicators include either roller or wick devices which physically wipe appropriate concentrations or amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Performance may be improved by reducing speed in areas of heavy weed infestations to insure adequate wiper saturation. Best results may be obtained if 2 applications are made in opposite directions.

AVOID CONTACT WITH DESIRABLE VEGETATION. Contact of the herbicide solution with desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that wiper contact point is at least 5 cm above the desirable vegetation. Droplets or foam of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications should be made when the weeds are a minimum of 15 cm above the desirable vegetation. Best results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatments may be necessary. See the Weed Control tables in this label for recommended stage of growth for specific weeds.

NOTES

- Maintain equipment in good operating condition. Avoid leakage or dripping onto desirable vegetation.
- Adjust height of applicator to insure proper contact with weeds.
- Keep wiping surfaces clean.
- Maintain recommended roller RPM on roller applicators while in use.
- Keep wiper material at proper degree of saturation with herbicide solution.
- **DO NOT** use wiper equipment when weeds are wet.

- DO NOT operate equipment at ground speeds below 4 and greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to insure good coverage of weeds.
- Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.
- Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended herbicide solution directly to the weed.
- Care must be taken with all types of wipers to insure that the absorbent material does not become over-saturated, causing the herbicide to drip onto desirable vegetation.
- With all equipment, drain and clean wiper parts immediately after using this product, by thoroughly flushing with water.

For Roller Applicators--Mix 0.38 to 0.75 L of this product in 10 L water to prepare a 3.8 to 7.5% solution. Roller speed should be maintained at 50 to 150 rpm.

For Wick or other Wiper Applicators--Mix 1 litre of this product in 3 litres of water to prepare a 25% solution.

NON-CROPLAND USES

NON-CROPLAND USES INCLUDE:

Industrial; military bases, recreational, rights-of-way, and public areas; turf grass renovation.

ALWAYS READ PRECAUTIONARY STATEMENTS, GENERAL INFORMATION and MIXING and APPLICATION SECTIONS PRIOR TO SPECIFIC APPLICATION INFORMATION IN ANY LABEL SECTION.

This product can be used to control annual and perennial weeds and woody brush and trees listed on this label in non-crop areas such as railroad, pipeline, highway, power and telephone rights-of-way; petroleum tank farms and pumping installations; roadsides; storage areas; lumberyards; fence rows; military impact zones; artillery/small arms ranges; troop training areas; ammunition storage bunkers; industrial plant sites; parking areas; school yards, parks, golf courses, other public areas; airports and similar industrial or non-crop areas.

NOTE: For all industrial, military bases, rights-of-way, recreational and public areas, repeat treatments may be necessary to control regeneration or new growth.

When applied as recommended under the conditions described, this product will control weeds in non-cropland areas as listed in the following table.

WEED CONTROL IN NON-CROPLAND AREAS WITH VP480 HERBICIDE

WEEDS	GROUND APPLICATION			COMMENTS
	BOOM APPLICATION		Hand Held High Volume Application % Solution	
	Rate † L / ha	Water Vol. † L /ha		
Annual grasses and broadleaves	1.69 – 2.63	50 - 100	1	Actively growing weeds
<u>Perennial Weeds</u> Quackgrass	1.88	50 - 300	1	Actively growing weeds Add 0.5% v/v of a recommended surfactant when using water

	3.56 –5.25	50 - 300	2	volumes greater than 150 L. Higher rate for long term control and for heavy infestations
Canada Thistle (Bud Stage)	3.56 - 5.25	100 - 300	2	See section on purple loosestrife control for application instructions
Purple loosestrife	4.5	300-600	0.75 – 1.5 (or 25% for wiper application)	Summer through fall is optimum
Other Perennials	5.25 – 9	100 –300	2	
<u>Brush and Trees</u>				Summer through early fall
Birch, Cherry, Poplar, Western Snowberry, Willow	2.25 – 4.5	100 – 300	1 - 2	Late Summer through fall
Maple, Raspberry/ Salmonberry, Alder	4.5	100 – 300	2	Fall is optimum
<u>Turf Renovation</u>	1.88 – 9.0	100 – 300	1 - 2	Use higher end of the rate range for perennials
Annual and Perennial Weeds				
<u>Roadside Vegetation</u> (1-2 m wide along shoulders) Annual Weeds (refer to Tank-Mix sections on product labels for specific weeds controlled)	1) 0.56- 0.75 + 1.25-2.5 L Vanquish or 2) 0.56- 0.75 + 0.30 L DyCleer Agricultural Herbicide + 1.2 L 2,4-D Amine 500	25-150	-	Refer to annual weed control table in this label for appropriate product rate for specific weeds For 2,4-D amine formulations with a different guarantee, adjust the rate accordingly No application to standing water

<p>Residual Control Annual and Perennial Weeds (the simazine component of this tank mixture will provide season long control of most germinating broadleaf weeds and grasses. It may also provide post-emergent activity on certain annual weeds)</p>	<p>1.88 – 9 + 4.0-9.0 L Simadex Flowable</p>	<p>200-400</p>	<p>-</p>	<p>Do not apply to coarse, sandy or gravelly soil. One application per year.</p> <p>Use according to the most restrictive label directions for each product in the mixture.</p> <p>For other simazine formulations registered for industrial/non-cropland areas, use equivalent rates; i.e. 2.0-4.5 kg simazine/ha</p>
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† For more information on rates, water volumes and application, refer to the "Annual and Perennial Weed Control" sections of this booklet.

†† Aerial application may be used for brush and tree control in Industrial rights-of-way and military bases only. See aerial application section.

APPLICATION INFORMATION FOR NON-CROPLAND USES

Foliar Applications

Spray coverage should be uniform and complete. Do not spray to the point of runoff. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

This product does not provide residual weed control. For subsequent weed control, follow a label approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

GROUND APPLICATIONS: For all non-cropland uses

For woody brush and trees, apply 2.25 to 4.5 L of this product per hectare. Use ground boom or boomless, or mist blower equipment, or apply as a 0.75 to 1.5% solution using hand-held high volume equipment. Apply as directed in the recommended volume of clean water to foliage of actively growing vegetation. Use the 4.5 L/ha rate for Maple, Alder and Willow† species, as well as for hard to control perennial weed species.

(† Suppression only)

Spray coverage should be uniform and complete. Do not spray to the point of runoff. Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages.

AERIAL APPLICATIONS: For industrial, rights-of-way and military bases only

DIRECTIONS FOR USE

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. **Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.**

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking device or equivalent electronic positioning systems (GPS). The use of a spotter plane is recommended.

Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the National Aerial Pesticide Application Manual, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Application Rates

For woody brush and trees, apply 2.25 to 4.5 L of this product per hectare. Use the 4.5 L/ha rate for Maple, Alder and Willow† species, as well as for hard to control perennial weed species. Use the recommended rates of this herbicide in 30 to 100 L of water per hectare. As density of vegetation increases, spray volume should be increased within the recommended range to ensure complete coverage. This product may also be applied by aerial application for the control of annual and perennial weeds, woody brush and trees in artillery impact zones on military bases.

(† Suppression only)

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, obtain technical advice from the distributor or your provincial agricultural representative. Application of this product must meet and or conform to the following:

Volume: Apply the recommended rate in a spray volume of 30 to 100 litres per hectare. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift is increased under certain meteorological conditions. Do not apply during periods of dead calm, when winds are gusty or when wind speed is greater than 16 km/hour at flying height at the site of application. Do not use a boom height greater than 10 metres above canopy. Only nozzles producing coarse droplet sizes (i.e., ASAE droplet size categories with VMD \geq 385.2 μ m) should be used for aerial application of VP480 to rights-of-way and military bases.

PURPLE LOOSESTRIFE CONTROL

- DO NOT TREAT PLANTS OVER OPEN WATER. VP480 Herbicide is not registered for direct application to bodies of water.
- Treat when plants are actively growing at or beyond the bloom stage. If using hand-held equipment, spray-to-wet.
- For wiper applications, see specific section on this label.
- Where feasible, remove flower heads before treatment to ensure prevention of seed set.
- For large (>1.6 ha) monocultures of loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.
- A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

Selective Application for All Non-Cropland Uses

Selective equipment such as **WIPER** and **ROLLER** applicators can be used to control emerged weeds in non-crop areas and tree plantings. See "Selective Equipment" for more information.

Turfgrass

When applied as directed, under conditions described, this product controls most existing vegetation. Apply this product at rates specified in the "Weed Control in Non-Cropland Areas" section.

DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.

Where existing vegetation is growing in a field or unmowed situation, apply this product to actively growing weeds at the stages of growth given in the "Weeds Controlled" section of this booklet. Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray and proper translocation into underground plant parts. Tillage or renovation techniques such as vertical mowing, coring or slicing should be delayed for 7 days after application to allow proper translocation into underground plant parts.

For maximum control of existing vegetation, delay establishment to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. Desirable turfgrasses may be established following the above procedures.

Injection Applications - for all non-cropland uses

Woody vegetation may be controlled by injection application of this product. Apply using suitable equipment, which must penetrate into living tissue, at a rate of at least 0.38 mL (either undiluted or 1:1 with water) per 5 cm tree diameter at breast height (DBH). The cuts should be spaced evenly around the tree and below all major branches. Application may be made at any time of year, except when cold temperatures prevent adequate penetration of injection equipment, or in the spring during periods of heavy sap flow. Control of tree species with tree diameters greater than 20 cm may not be acceptable at this rate.

Total control may not be evident for 1-2 years following treatment.

A list of species controlled includes:

ALDER

Alnus spp.

BIRCH

Betula spp.

CEDAR

Thuja spp.

HEMLOCK

Tsuga spp.

MAPLE†

Acer spp.

PINE

Pinus spp.

CHERRY

Prunus spp.

DOUGLAS FIR

Pseudotsuga spp.

POPLAR

Populus spp.

WILLOW

Salix spp.

†This treatment may only provide suppression of Big-Leaf Maple. Late fall applications will provide optimum suppression of Big- Leaf Maple

Cut Stump Application

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Because the treatment uses a concentrated solution, application must be made using low-pressure equipment, e.g. squirt bottle or similar device. This product must be applied immediately to the surface of the freshly cut stump i.e. within 5 minutes for optimum control at the prescribed rates. Only the cambial tissues of the cut surface should be treated. Apply the herbicide solution at a rate equivalent to at least 0.38 mL product for every 5 cm DBH. Do not cover the remaining area nor any exposed roots, as this product does not penetrate bark well. This treatment may be used at any time of year, except during periods of heavy sap flow or when low temperatures prevent solution application due to freezing. A water soluble colourant may be added to the solution as a means of indicating which surfaces have been treated. Total control may not be evident until 1-2 years after treatment.

See the "Injection Applications" section of this label for the list of species controlled.

FORESTRY USES**DO NOT APPLY BY AIR**

Unless otherwise specified under a restricted use.

Application Rates (Forest and Woodland Management, Conifer/Deciduous/Pasture Release)

To control or suppress most herbaceous weeds, woody brush and trees, apply 2.25 to 4.5 litres of this product per hectare using ground boom or boomless, or mist blower equipment, or apply as a 1 to 2% solution using hand-held high volume equipment. For control of perennial herbaceous weeds, woody brush and trees in site preparation applications using ground boom or boomless, or mist blower equipment, apply 5.25 to 9 litres of this product per hectare as directed in the recommended volume of clean water to the foliage or actively growing vegetation. Use the 4.5 L/ha rate for control of maple, alder or willow species.

WOODLAND MANAGEMENT (Treatment of 500 ha or less)**SITE PREPARATION and FOREST ROADSIDE (Ground Only) and RIGHTS-OF-WAY VEGETATION MANAGEMENT**

Use this product as broadcast treatment at recommended rates, to control herbaceous weeds, woody brush and tree species. For control of herbaceous weeds, apply when most perennial broadleaf weeds have reached the early head of early bud stage of growth. For perennial grasses, apply when most weeds are 20 cm in height. Apply when brush and tree species are actively growing and when foliage is full and well-developed. For best results apply in late summer or early fall. Some autumn colours on undesirable deciduous species are acceptable provided no major leaf fall has occurred. Following site preparation application of this product, any silvicultural species may be planted.

For control of vegetation on sites with infestations of ericaceous species (e.g. Kalmia spp - sheep laurel, lamb kill), use 4.5 L/ha VP480 in the recommended water volume and an additional silicon-based surfactant (such as Sylgard 309) as per label instructions. Apply between mid-August and mid-September for maximum performance.

CONIFER RELEASE

Use this product as a broadcast spray at recommended rates, to control herbaceous weeds, woody brush and tree species, to release from competition the coniferous species listed below:

DOUGLAS FIR
Pseudotsuga spp.
FIR
Abies spp
HEMLOCK
Tsuga,spp.

PINE
Pinus spp.
SPRUCE
Picea spp.

For conifer release of spruce seedlings in the year of transplanting, apply 1.5 to 4.5 litres of this product per hectare in plantations of summer planted spruce species (*Picea glauca*, *P. Engelmannii* and their hybrids). Conifers must be planted in the same year as treatment and in the field for at least 18 days prior to treatment. Seedlings to be treated must clearly show bud set and bud hardening following a dormancy induction regime in the nursery. The need for such early release treatments is expected on sites which are subject to the rapid development of herbaceous and shrub communities.

Most annual and perennial weeds will be controlled or suppressed. Applications must be made after formation of final conifer resting buds. Applications made during period of active conifer growth may result in conifer injury. Avoid application during Lammas or late season conifer growth. Some autumn colours are acceptable provided no major leaf fall has occurred on undesirable brush and tree species.

For conifer release, apply where conifers have been established for more than a year. Vegetation should not be disturbed immediately prior to treatment or until visual signs appear after treatment. Symptoms of treatment are slow to appear, especially in woody species treated in late fall. Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher rates are applied or when applications are made during periods of active conifer growth.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries, or in Christmas tree plantations. Applications in such sites should be limited to directed sprays. DO NOT TREAT Christmas tree plantations in the year of anticipated harvest.

Conifer Release by Directed Spraying

Use this product to control herbaceous and woody species. Apply when the undesirable species are actively growing and the foliage is full and well-developed. This product does not provide pre-emergent weed control. Repeat treatments may be necessary to control weeds that generate from underground parts or seed.

Undesirable deciduous species may be treated when they already have autumn colours, provided there has been no major leaf fall. For perennial broadleaf species, apply when most weeds have reached early head or early bud stage of growth. For annual and perennial grasses, apply when most weeds are 20 cm in height (3-4 leaf stage of growth).

Direct spray so that the foliage of undesired vegetation is thoroughly wetted. Do not spray foliage to the point of run-off. Applying the product to conifers during their period of active growth (before lignification) may cause tree injury. Under such conditions, take the necessary precautions to ensure that spray, mist or spray drift does not come into contact with the foliage or green bark of conifers being cultivated.

The product may be applied on sites regenerated by the following species (partial list): SPRUCE (*Picea* spp.), PINE (*Pinus* spp.), HEMLOCK (*Tsuga* spp.), DOUGLAS FIR (*Pseudotsuga* spp.). No time interval is required between tree planting and application of the product. See vegetation controlled, specific rates and application and mixing instructions elsewhere on this label.

Do not allow spray to come in contact with foliage, green stems or fruit of non-target crops, since they may be killed or severely damaged.

DECIDUOUS RELEASE

Use this product to control herbaceous weeds and woody brush. Apply when the undesirable species are actively growing, and the foliage is well developed. This product has no pre-emergent activity. Repeat treatments may be required for species which regenerate from underground stems or from seeds.

Applications may be made to undesirable deciduous species with some autumn colours, provided that major leaf fall has not yet occurred.

Use a directed spray to thoroughly cover the foliage of the undesirable vegetation. Take all necessary precautions to prevent contact of the spray, spray mist or spray drift with the foliage or green bark of desirable species.

A partial list of species for use with this product on regenerated sites includes: ASH (*Fraxinus* spp.); WALNUT (*Juglans* spp); LINDEN or BASSWOOD (*Tilia* spp); CHERRY (*Prunus* spp.); OAK (*Quercus* spp); ELM (*Ulmus* spp) and POPLAR (*Populus* spp). Product may be applied immediately after transplanting.

See use rates and application instructions elsewhere on this label.

RESTRICTED USE

FOREST and WOODLANDS MANAGEMENT

Ground/Aerial Application for Sites Greater Than 500 ha (Forestry Use)

Aerial Application for Sites 500 ha or Less (Woodlands Use)

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

NATURE OF RESTRICTION: This product is to be used only in the manner authorized; consult local pesticide regulatory authorities about use permits which may be required.

Do not apply to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely.

In order to reduce the drift hazard to non-target plants and aquatic species when aerially treating silvicultural sites, ensure that appropriate buffer zones are maintained.

SITE PREPARATION

Use this product as broadcast treatment at recommended rates, to control herbaceous weeds, woody brush and tree species listed on this label. Apply when brush and tree species are actively growing and when foliage is full and well-developed. For best results apply in late summer or early fall. Some autumn colours on undesirable deciduous species are acceptable provided no major leaf fall has occurred. Following site preparation application of this product, any silvicultural species may be planted.

CONIFER RELEASE

Use this product as a broadcast spray at recommended rates, to control herbaceous weeds, woody brush and tree species listed on this label, to release from competition the coniferous species listed below:

DOUGLAS FIR
Pseudotsuga spp.
FIR
Abies spp.
HEMLOCK
Tsuga spp.

PINE
Pinus spp.
SPRUCE
Picea spp.

For conifer release of spruce seedlings in the year of transplanting, apply 1.5 to 4.5 litres of this product per hectare in plantations of summer planted spruce species (*Picea glauca*, *P. Engelmannii* and their hybrids). Conifers must be planted in the same year as treatment and in the field for at least 18 days prior to treatment. Seedlings to be treated must clearly show bud set and bud hardening following a dormancy induction regime in the nursery. The need for such early release treatments is expected on sites which are subject to the rapid development of herbaceous and shrub communities.

Most annual and perennial weeds will be controlled or suppressed. Applications must be made after formation of final conifer resting buds. Applications made during period of active conifer growth may result in conifer injury. Avoid application during Lammas or late season conifer growth. Some autumn colours are acceptable provided no major leaf fall has occurred on undesirable brush and tree species.

For conifer release, apply where conifers have been established for more than a year. Vegetation should not be disturbed immediately prior to treatment or until visual signs appear after treatment. Symptoms of treatment are slow to appear, especially in woody species treated in late fall. Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher rates are applied or when applications are made during periods of active conifer growth.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Applications in such cities should be limited to directed sprays. DO NOT TREAT Christmas tree plantations in the year of anticipated harvest.

DIRECTIONS FOR USE

Aerial Application

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rates recommended for aerial application on this label in 20-100 L of water per ha. **Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment.**

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices or equivalent electronic positioning systems (GPS).

Aerial Application Use Precautions

Apply only when meteorological conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat. Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure.

Aerial Application Operator Precautions

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

Aerial Application Product Specific Precautions

Read and understand the entire label before opening this product. If you have questions, call the manufacturer at 1-800-667-3852 or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Use the recommended rates of this herbicide as listed on the full label.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

BUFFER ZONES

DO NOT apply during periods of dead calm or when winds are gusty. **DO NOT** apply with spray droplets smaller than ASAE medium classification.

Aerial Application: DO NOT apply when wind speed is greater than 16 km/h (preharvest) or 8 km/h (rights-of-way and military bases) at flying height at the site of application. **DO NOT** apply with spray droplets smaller than the ASAE coarse classification.

Buffer Zones

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way and for forestry uses, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (for example, wind direction, low wind speed) and spray equipment (for example, coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, wetlands and estuarine/marine water bodies).

Method of Application	Crop	Maximum number of applications	Buffer Zones (metres) required for protection of:	
			Aquatic Habitat	Terrestrial Habitat
Agricultural, forestry and non-cropland systems				
Agricultural crop system and ground boom application method	Pre-seeding applications for rye, cranberry, filberts, hazelnut and all other crops. Established pasture. Ginseng new garden.	1	1	1
	Ginseng - existing established garden, Canola – Roundup Ready hybrid for seed production	2	1	1
	Filberts or hazelnut, sugar beets (glyphosate tolerant varieties)	4	1	1

	Corn (glyphosate non-tolerant varieties including grain, silage and ornamental types), sugar beet (glyphosate non-tolerant varieties), strawberry, blueberry highbush and lowbush, walnut, chestnut, Japanese heartnut, Turf grass (prior to establishment or renovation)		2	1	2
	Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), corn-sweet (glyphosate tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils, chickpea, lupin (dried), fava bean (dried), mustard (yellow/white, brown, oriental), asparagus, corn (glyphosate tolerant varieties), forage grasses and legume including seed production		3	1	2
	Canola (glyphosate tolerant varieties), soybean (glyphosate tolerant varieties)		4	1	2
	Apple, apricot, cherry (sweet/sour), peaches, pears, plums, grapes		3	1	3
Agricultural crop system and airblast application method (including mist blower)	Pasture		1	20	30
	Turfgrass (Prior to establishment or renovation)		2	25	35
Forest plant system and ground boom application method	<i>Forest and woodlands > 500 ha</i> Site preparation		2	1	NR
Forest plant system and airblast application method (including mist blower)	<i>Forest and woodlands > 500 ha</i> Site preparation		2	1	NR
Non-cropland system and ground boom application method	Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	3*
Non-cropland system and airblast application method (including mist blower)	Non-crop land and industrial uses: Industrial and rights of way areas, Recreational and public areas		3	1	30*
Agricultural crop system and aerial application method	Rye, corn (glyphosate non-tolerant varieties), corn-sweet (glyphosate tolerant varieties), chickpea, lupin (dried), fava bean (dried), mustard (yellow/white, brown, oriental), sugar beet (glyphosate non-tolerant varieties), all other crops for pre-seeding treatments only	Fixed and rotary wing	1	15	20

	Canola (glyphosate tolerant varieties)	Fixed and rotary wing	3	20	40
	Sugar beets (glyphosate tolerant varieties)	Fixed wing	2	20	30
		Rotary wing	2	15	30
	Wheat, barley, oats, soybean (glyphosate non-tolerant varieties), canola (glyphosate non-tolerant varieties), peas, dry beans, flax (including low linoleic acid varieties), lentils	Fixed wing	2	20	35
		Rotary wing	2	20	30
	Forage grasses and legume including seed production	Fixed and rotary wing	1	20	40
	Soybean (glyphosate tolerant varieties)	Fixed wing	3	20	45
		Rotary wing	3	20	40
	Corn (glyphosate tolerant varieties)	Fixed wing	2	20	50
		Rotary wing	2	20	45
	Pasture	Fixed wing	1	30	70
		Rotary wing	1	30	55
Forestry system and aerial application method	<i>Forest and woodlands >500 ha</i> Site preparation	Fixed wing	2	10	NR
		Rotary wing	2	1	NR
	<i>Forest and woodlands <500 ha</i> Site preparation	Fixed wing	2	5	NR
		Rotary wing	2	1	NR
Non-cropland system and aerial application method	Non-crop land and industrial uses: rights-of way areas and military bases only	Fixed wing	3	100	NR
		Rotary wing	3	60	NR

* Buffer zones for the protection of terrestrial habitats are not required for forestry uses or for use on rights-of-way including railroad ballast, rail and hydro rights-of-way, utility easements, roads, and training grounds and firing ranges on military bases.

NR = Not Required

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, VP480 Herbicide is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to VP480 Herbicide and other Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of VP480 Herbicide or other Group 9 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(S) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor treated weed populations after herbicide application for signs of resistance development. (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Dow AgroSciences Canada Inc. at 1-800-667-3852 or at www.corteva.ca.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

™ Trademarks of Dow AgroSciences, DuPont or Pioneer and their affiliated companies or respective owners.

All other products listed are registered trademarks of their respective companies.

082819

Label Code: CN-28840-012-E

Replaces: CN-28840-011-E

Specimen label notes

Update REI statement



Safety Data Sheet California CARB Compliant

1 - Identification

<p>Product Name: WD-40 Multi-Use Product Aerosol</p> <p>Product Use: Lubricant, Penetrant, Drives Out Moisture, Removes and Protects Surfaces From Corrosion</p> <p>Restrictions on Use: None identified</p> <p>SDS Date Of Preparation: March 5, 2019</p>	<p>Manufacturer: WD-40 Company</p> <p>Address: 9715 Businesspark Avenue San Diego, California, USA 92131</p> <p>Telephone:</p> <p>Emergency: 1-888-324-7596</p> <p>Information: 1-888-324-7596</p> <p>Chemical Spills: 1-800-424-9300 (Chemtrec) 1-703-527-3887 (International Calls)</p>
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2 – Hazards Identification

Hazcom 2012/GHS Classification:

Flammable Aerosol Category 1

Gas Under Pressure: Compressed Gas

Aspiration Toxicity Category 1

Specific Target Organ Toxicity Single Exposure Category 3 (nervous system effects)

Note: This product is a consumer product and is labeled in accordance with the US Consumer Product Safety Commission regulations which take precedence over OSHA Hazard Communication labeling. The actual container label will not include the label elements below. The labeling below applies to industrial/professional products.

Label Elements:



DANGER!

Extremely Flammable Aerosol.

Contains gas under pressure; may explode if heated.

May be fatal if swallowed and enters airways.

May cause drowsiness or dizziness.

Prevention

Keep away from heat, sparks, open flames, hot surfaces. – No smoking.

Do not spray on an open flame or other ignition source.

Pressurized container: Do not pierce or burn, even after use.

Avoid breathing vapors or mists.

Use only outdoors or in a well-ventilated area.

Response

IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

Storage

Store locked up.

Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Store in a well-ventilated place.

Disposal

Dispose of contents and container in accordance with local and national regulations.

3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent	US Hazcom 2012/ GHS Classification
LVP Aliphatic Hydrocarbon	64742-47-8	45-50%	Aspiration Toxicity Category 1
Petroleum Base Oil	64742-56-9 64742-65-0 64742-53-6 64742-54-7 64742-71-8	<35%	Not Hazardous
Aliphatic Hydrocarbon	64742-47-8	<25%	Flammable Liquid Category 3 Aspiration Toxicity Category 1 Specific Target Organ Toxicity Single Exposure Category 3 (nervous system effects)
Carbon Dioxide	124-38-9	2-3%	Simple Asphyxiant Gas Under Pressure, Compressed Gas

Note: The specific chemical identity and exact percentages are a trade secret.

4 – First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.

Eye Contact: Flush thoroughly with water. Remove contact lenses if present after the first 5 minutes and continue flushing for several more minutes. Get medical attention if irritation persists.

Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.

Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.

Signs and Symptoms of Exposure: Harmful or fatal if swallowed. Aspiration of liquid into the lungs during swallowing or vomiting may cause lung damage. May cause eye and respiratory irritation. Inhalation of mists or vapors may cause drowsiness, dizziness and other nervous system effects. Skin contact may cause drying of the skin.

Indication of Immediate Medical Attention/Special Treatment Needed: Immediate medical attention is needed for ingestion.

5 – Fire Fighting Measures

Suitable (and unsuitable) Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.

Specific Hazards Arising from the Chemical: Extremely flammable aerosol. Contents under pressure. Keep away from ignition sources and open flames. Exposure of containers to extreme heat and flames can cause them to rupture often with violent force. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. Combustion will produce oxides of carbon and hydrocarbons.

Special Protective Equipment and Precautions for Fire-Fighters: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water. Use shielding to protect against bursting containers.

6 – Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area.

Methods and Materials for Containment/Cleanup: Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

7 – Handling and Storage

Precautions for Safe Handling: Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use only with adequate ventilation. Keep away from heat, sparks, pilot lights, hot surfaces and open flames. Unplug electrical tools, motors and appliances before spraying or bringing the can near any source of electricity. Electricity can burn a hole in the can and cause contents to burst into flames. To avoid serious burn injury, do not let the can touch battery terminals, electrical connections on motors or appliances or any other source of electricity. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children. Do not puncture, crush or incinerate containers, even when empty.

Conditions for Safe Storage: Store in a cool, well-ventilated area, away from incompatible materials. Do not store above 120°F or in direct sunlight. U.F.C (NFPA 30B) Level 3 Aerosol. Store away from oxidizers.

8 – Exposure Controls/Personal Protection

Chemical	Occupational Exposure Limits
LVP Aliphatic Hydrocarbon	1200 mg/m ³ TWA (manufacturer recommended)
Petroleum Base Oil	5 mg/m ³ TWA (Inhalable) ACGIH TLV (as Mineral oil) 5 mg/m ³ TWA OSHA PEL (as Oil mist, mineral)
Aliphatic Hydrocarbon	1200 mg/m ³ TWA (manufacturer recommended)
Carbon Dioxide	5000 ppm TWA, 30,000 ppm STEL ACGIH TLV 5000 ppm TWA OSHA PEL

The Following Controls are Recommended for Normal Consumer Use of this Product

Appropriate Engineering Controls: Use in a well-ventilated area.

Personal Protection:

Eye Protection: Avoid eye contact. Always spray away from your face.

Skin Protection: Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.

Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended

Appropriate Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.

Personal Protection:

Eye Protection: Safety goggles recommended where eye contact is possible.

Skin Protection: Wear chemical resistant gloves.

Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z88.2 and good Industrial Hygiene practice.

Work/Hygiene Practices: Wash with soap and water after handling.

9 – Physical and Chemical Properties

Appearance:	Light amber liquid	Flammable Limits: (Solvent Portion)	LEL: 0.6% UEL: 8%
Odor:	Mild petroleum odor	Vapor Pressure:	95-115 PSI @ 70°F
Odor Threshold:	Not established	Vapor Density:	Greater than 1 (air=1)
pH:	Not Applicable	Relative Density:	0.8 – 0.82 @ 60°F
Melting/Freezing Point:	Not established	Solubilities:	Insoluble in water
Boiling Point/Range:	361 - 369°F (183 - 187°C)	Partition Coefficient; n- octanol/water:	Not established
Flash Point:	138°F (59°C) Tag Closed Cup (liquid)	Autoignition Temperature:	Not established

Evaporation Rate:	Not established	Decomposition Temperature:	Not established
Flammability (solid, gas):	Flammable Aerosol	Viscosity:	2.79-2.96 cSt @ 100°F
VOC:	24.1% MIR=0.43gO3/gVOC	Pour Point:	-63°C (-81.4°F) ASTM D-97

10 – Stability and Reactivity

Reactivity: Not reactive under normal conditions

Chemical Stability: Stable

Possibility of Hazardous Reactions: May react with strong oxidizers generating heat.

Conditions to Avoid: Avoid heat, sparks, flames and other sources of ignition. Do not puncture or incinerate containers.

Incompatible Materials: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 – Toxicological Information

Symptoms of Overexposure:

Inhalation: High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.

Skin Contact: Prolonged and/or repeated contact may produce mild irritation and defatting with possible dermatitis.

Eye Contact: Contact may be irritating to eyes. May cause redness and tearing.

Ingestion: This product has low oral toxicity. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis, severe lung damage and death.

Chronic Effects: None expected.

Carcinogen Status: None of the components are listed as a carcinogen or suspect carcinogen by IARC, NTP, ACGIH or OSHA.

Reproductive Toxicity: None of the components is considered a reproductive hazard.

Numerical Measures of Toxicity:

Acute Toxicity Estimates: Oral > 5,000 mg/kg; Dermal >2,000 mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard.

12 – Ecological Information

Ecotoxicity: No specific aquatic toxicity data is currently available; however components of this product are not expected to be harmful to aquatic organisms

Persistence and Degradability: Components are readily biodegradable.

Bioaccumulative Potential: Bioaccumulation is not expected based on an assessment of the ingredients.

Mobility in Soil: No data available

Other Adverse Effects: None known

13 - Disposal Considerations

If this product becomes a waste, it would be expected to meet the criteria of a RCRA ignitable hazardous waste (D001). However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Do not puncture or incinerate containers, even empty. Dispose in accordance with federal, state, and local regulations.

14 – Transportation Information

DOT Surface Shipping Description: UN1950, Aerosols, 2.1 Ltd. Qty
(Note: Shipping Papers are not required for Limited Quantities unless transported by air or vessel – each package must be marked with the Limited Quantity Mark)
IMDG Shipping Description: UN1950, Aerosols, 2.1, LTD QTY
ICAO Shipping Description: UN1950, Aerosols, flammable, 2.1

NOTE: WD-40 Company does not test aerosol cans to assure that they meet the pressure and other requirements for transport by air. We do not recommend that our aerosol products be transported by air.

15 – Regulatory Information

U.S. Federal Regulations:

CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

SARA TITLE III:

Hazard Category For Section 311/312: Acute Health, Fire Hazard, Sudden Release of Pressure

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None

Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): This product does not require a California Proposition 65 warning.

VOC Regulations: This product complies with the consumer product VOC limits of CARB, the US EPA and states adopting the OTC VOC rules.

Canadian Environmental Protection Act: All of the ingredients are listed on the Canadian Domestic Substances List or exempt from notification

16 – Other Information

HMIS Hazard Rating:

Health – 1 (slight hazard), Fire Hazard – 4 (severe hazard), Physical Hazard – 0 (minimal hazard)

Revision Date: March 5, 2019

Supersedes: July 19, 2018

Revision Summary: Section 9 update VOC data

Prepared by: Industrial Health & Safety Consultants, Inc. Shelton, CT, USA

Reviewed by: I. Kowalski

Regulatory Affairs Dept.

1012200/No.0084704

SAFETY DATA SHEET

Creation Date 17-Sep-2010

Revision Date 25-Apr-2019

Revision Number 4

1. Identification

Product Name Urea

Cat No. : BP169-10; BP169-212; BP169-500 ; XXBP169100KG; NC131771;
XXBP1695KG; NC1798093

CAS-No 57-13-6
Synonyms Carbamide

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.
Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements

None required

Hazards not otherwise classified (HNOC)

None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Urea	57-13-6	>95

4. First-aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration.
Ingestion	Do NOT induce vomiting. Get medical attention if symptoms occur.
Most important symptoms and effects	None reasonably foreseeable.
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO₂). Nitrogen oxides (NO_x).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	1	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.
Environmental Precautions	Should not be released into the environment. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid contact with skin, eyes or clothing. Avoid dust formation. Protect from moisture.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures None under normal use conditions.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Ammonia-like
Odor Threshold	No information available
pH	7.5-9.5 10% aq. solution
Melting Point/Range	131 - 135 °C / 267.8 - 275 °F
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1.25 mmHg @ 25 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	> 132°C
Viscosity	Not applicable
Molecular Formula	C H4 N2 O

Molecular Weight 60.06

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation. Protect from moisture.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO₂), Nitrogen oxides (NO_x)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Urea	LD50 = 8471 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation May cause irritation of respiratory tract

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Urea	57-13-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Urea	Not listed	LC50: 16200 - 18300 mg/L, 96h (Poecilia reticulata)	= 23914 mg/L EC50 Photobacterium phosphoreum 5 min	EC50: > 10000 mg/L, 24h (Daphnia magna Straus) EC50: = 3910 mg/L, 48h Static (Daphnia magna)

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility . Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Urea	-1.59

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Urea	57-13-6	X	ACTIVE	-

Legend:

TSCA - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Urea	57-13-6	X	-	200-315-5	X	X	X	X	KE-35144

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration	Not applicable
CERCLA	Not applicable
California Proposition 65	This product does not contain any Proposition 65 chemicals.
U.S. State Right-to-Know Regulations	Not applicable
U.S. Department of Transportation	
Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N
U.S. Department of Homeland Security	This product does not contain any DHS chemicals.
<u>Other International Regulations</u>	
Mexico - Grade	No information available

16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	17-Sep-2010
Revision Date	25-Apr-2019
Print Date	25-Apr-2019
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Puopack® PPC100

Polystyrenic Gel, Strong Acid Cation Resin, Sodium form, Packed Bed Grade

PRINCIPAL APPLICATIONS

- Softening - Industrial
- Industrial demineralization when regenerated with acids

ADVANTAGES

- High linear velocity applications
- Efficient separation
- Lower pressure drop versus standard resin

SYSTEMS

- Packed Bed Systems
- Puopack packed bed systems

REGULATORY APPROVALS

- IFANCA Halal Certified
- Certified by the WQA to NSF/ANSI-61 Standard

TYPICAL PACKAGING

- 1 ft³ Sack
- 25 L Sack
- 5 ft³ Drum (Fiber)
- 1 m³ Supersack
- 42 ft³ Supersack

TYPICAL PHYSICAL & CHEMICAL CHARACTERISTICS:

Polymer Structure	Gel polystyrene crosslinked with divinylbenzene
Appearance	Spherical Beads
Functional Group	Sulfonic Acid
Ionic Form	Na ⁺
Total Capacity	2 eq/L (43.7 Kgr/ft³) (Na ⁺ form)
Moisture Retention	44 - 48 % (Na ⁺ form)
Mean Diameter	650 ± 50 µm
Uniformity Coefficient	1.1 - 1.2
Reversible Swelling, Na ⁺ → H ⁺ (max.)	9 %
Specific Gravity	1.29
Shipping Weight (approx.)	790 - 830 g/L (49.4 - 51.9 lb/ft³)
Temperature Limit	120 °C (248.0 °F)



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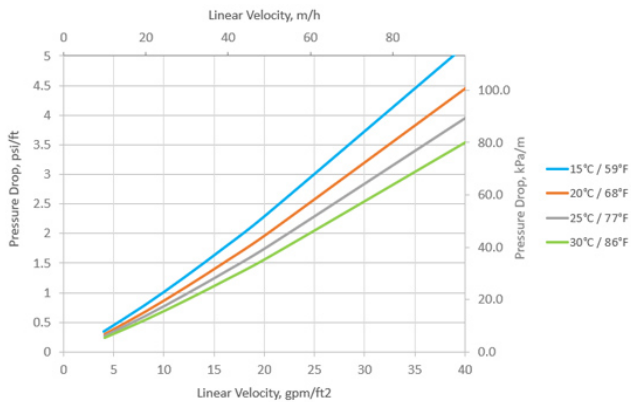
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Hydraulic Characteristics

PRESSURE DROP

The pressure drop across a bed of ion exchange resin depends on the particle size distribution, bed depth, and voids volume of the exchange material, as well as on the flow rate and viscosity of the influent solution. Factors affecting any of these parameters—such as the presence of particulate matter filtered out by the bed, abnormal compressibility of the resin, or the incomplete classification of the bed—will have an adverse effect, and result in an increased head loss. Depending on the quality of the influent water, the application and the design of the plant, service flow rates may vary from 10 to 40 BV/h.

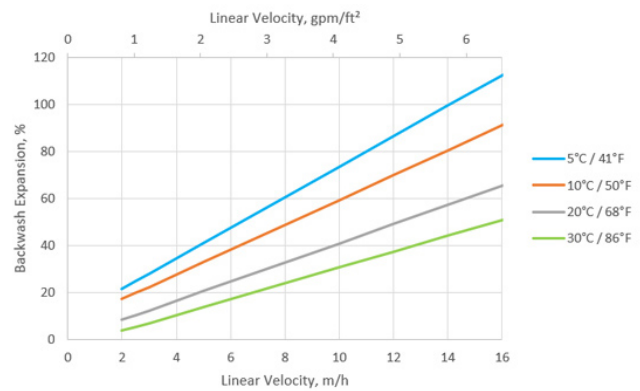
PRESSURE DROP ACROSS RESIN BED



BACKWASH

During up-flow backwash, the resin bed should be expanded in volume between 50 and 70% for at least 10 to 15 minutes. This operation will free particulate matter, clear the bed of bubbles and voids, and reclassify the resin particles ensuring minimum resistance to flow. When first putting into service, approximately 30 minutes of expansion is usually sufficient to properly classify the bed. It is important to note that bed expansion increases with flow rate and decreases with influent fluid temperature. Caution must be taken to avoid loss of resin through the top of the vessel by over expansion of the bed.

BACKWASH EXPANSION OF RESIN BED



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Purofine® PFA600

Polystyrenic Gel, Type I Strong
Base Anion Resin, Chloride form,
Uniform Particle Size

PRINCIPAL APPLICATIONS

- Demineralization - Industrial

ADVANTAGES

- High operating capacity
- Good resistance to organic fouling
- Uniform particle size
- Efficient regeneration

REGULATORY APPROVALS

- Certified by the WQA to NSF/ANSI-61 Standard

TYPICAL PACKAGING

- 1 ft³ Sack
- 25 L Sack
- 5 ft³ Drum (Fiber)
- 1 m³ Supersack
- 42 ft³ Supersack

TYPICAL PHYSICAL & CHEMICAL CHARACTERISTICS:

Polymer Structure	Gel polystyrene crosslinked with divinylbenzene
Appearance	Spherical Beads
Functional Group	Type I Quaternary Ammonium
Ionic Form	Cl ⁻ form
Total Capacity	1.4 eq/L (30.6 Kgr/ft³) (Cl ⁻ form)
Moisture Retention	43 - 48 % (Cl ⁻ form)
Mean Diameter	570 ± 50 µm
Uniformity Coefficient	1.1 - 1.2
Reversible Swelling, Cl ⁻ → OH ⁻ (max.)	25 %
Specific Gravity	1.09
Shipping Weight (approx.)	675 - 700 g/L (42.2 - 43.8 lb/ft³)
Temperature Limit	100 °C (212.0 °F) (Cl ⁻ form)
Temperature Limit	60 °C (140.0 °F) (OH ⁻ form)



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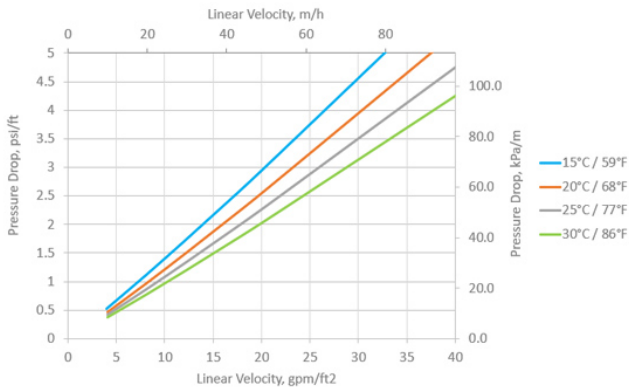
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Hydraulic Characteristics

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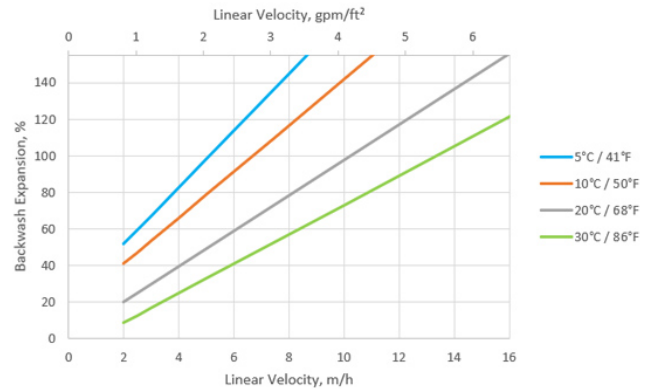
PRESSURE DROP ACROSS RESIN BED



BACKWASH

During up-flow backwash, the resin bed should be expanded in volume between 50 and 70% for at least 10 to 15 minutes. This operation will free particulate matter, clear the bed of bubbles and voids, and reclassify the resin particles ensuring minimum resistance to flow. When first putting into service, approximately 30 minutes of expansion is usually sufficient to properly classify the bed. It is important to note that bed expansion increases with flow rate and decreases with influent fluid temperature. Caution must be taken to avoid loss of resin through the top of the vessel by over expansion of the bed.

BACKWASH EXPANSION OF RESIN BED



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Hydrochloric Acid MSDS

Effective Date: December 03, 2012

24 Hour Emergency Contact:

ChemTel: (800)255-3924

www.pioneerforensics.com

1. PRODUCT AND COMPANY IDENTIFICATION

Product: Hydrochloric Acid
Product Number(s): PF021, PF022
CAS#: 7647-01-0
Synonyms: Muriatic acid; Hydrogen chloride, aqueous; Chlorohydric acid
Manufacturer: Pioneer Forensics, LLC
804 E. Eisenhower Blvd.
Loveland, CO 80537
Ph: (970) 292-8487
Emergency Number: (800) 255-3924 (CHEM-TEL)
Customer Service: (970) 292-8487

2. HAZARDS IDENTIFICATION

Emergency Overview: DANGER! Corrosive. Causes severe skin, eye, and digestive tract burns. Harmful if swallowed. Mist or vapor extremely irritating to eyes and respiratory tract.

Safety Ratings: Health: 3, Severe Reactivity: 1, Slight
Flammability: 0, None Contact: 4, Extreme

OSHA Regulatory Status: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Acute Health Effects:

Routes of Exposure: Inhalation, ingestion, skin contact, eye contact

Inhalation: Corrosive. May cause damage to mucous membranes in nose, throat, lungs and bronchial system.

Ingestion: Corrosive. Harmful if swallowed. May produce burns to the lips, oral cavity, upper airway, esophagus and digestive tract.

Skin Contact: Corrosive. Causes severe burns.

Eye Contact: Corrosive. Causes severe burns. Vapor or spray may cause eye damage, impaired sight or blindness.

Target Organs: Skin, respiratory system, eyes, lungs

Chronic Health Effects: Corrosive. Prolonged contact causes serious tissue damage.

Aggravation of: Repeated or prolonged exposure to the substance can produce target organs damage.
Medical Conditions: Persons with pre-existing skin disorders or eye problems may be more susceptible to the effects of the substance.

Potential Environmental Effects: May affect the acidity (pH) in water with risk of harmful effects to aquatic organisms.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Components</u>	<u>CAS#</u>	<u>Chemical Formula</u>	<u>Formula Weight</u>	<u>Hazardous</u>	<u>% by Weight</u>
Hydrochloric Acid	7647-01-0	HCl	36.46	Yes	36.5 - 38.0
Water	7732-18-5	H ₂ O	18.02	No	62.0 - 63.5

4. FIRST AID MEASURES

First Aid Procedures:

Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Get medical attention immediately.

Ingestion: Do not induce vomiting. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. GET MEDICAL ATTENTION IMMEDIATELY.

Skin Contact: Flush affected area with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention immediately.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

General Advice: In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Notes to Physician: Treat symptomatically. Keep victim under observation.

5. FIRE FIGHTING MEASURES

NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 1

Flammable Properties: The material is not flammable.

Flash Point: Not applicable

Auto-ignition Temp: Not applicable

Flammable Limits in Air (% by volume): Not applicable

Suitable Extinguishing Media: Water, dry powder, foam, carbon dioxide

Unsuitable Extinguishing Media: No information found

Hazardous Combustion Products:	Hydrogen chloride. Chlorine. May decompose upon heating to produce corrosive and/or toxic fumes.
Specific Hazards:	Fire may produce irritating, corrosive, and/or toxic gases.
Special Protective Equipment For Firefighters:	As in any fire, wear MSHA/NIOSH approved (or equivalent) self-contained positive pressure or pressure-demand breathing apparatus and full protective gear.
Specific Methods:	Use water spray to cool unopened containers. Cool containers exposed to flames with flooding quantities of water until well after the fire is out. In the event of fire and/or explosion do not breathe fumes.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Keep upwind. Keep out of low areas. Wear appropriate personal protective equipment as specified in the Exposure Control and Personal Protection Section 8. Avoid contact with eyes, skin, and clothing.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. In case of large spill, dike if needed.
Methods for Containment:	Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Dike the spilled material, where this is possible.
Methods for Cleaning Up:	Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, fleece), and place in a suitable non-combustible container for reclamation or disposal. Do not use combustible materials, such as sawdust. Clean contaminated surface thoroughly. Neutralize spill area and washings with soda ash or lime. Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations.

7. HANDLING AND STORAGE

Handling:	Wear personal protective equipment (see section 8). Use only in well-ventilated areas. Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. When using, do not eat, smoke, or drink. Keep away from incompatible materials. Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquids). Observe all warnings and precautions listed for the product. Use caution when combining with water. DO NOT add water to acid. ALWAYS add acid to water while stirring to prevent release of heat, steam, and fumes.
Storage:	Store in a cool, dry, ventilated area away from incompatible materials. Store in original container. Keep containers tightly closed and upright. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

Exposure Limits:	ACGIH: Ceiling: 2 ppm OSHA: Ceiling: 5 ppm 7 mg/m ³
Engineering Controls:	Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls

to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Explosion proof exhaust ventilation should be used.

Personal Protective Equipment:

Eye/Face Protection: Wear safety glasses with side shields or goggles and a face shield.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with acid gas cartridge. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General Hygiene Considerations: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Transparent
Color:	Colorless
Odor:	Pungent, irritating
Molecular Formula:	HCl
Molecular Weight:	36.46
pH:	0.1 (1.0 N Solution)
Specific Gravity:	1.18
Freezing/Melting Point:	-25 °C (-13 °F)
Boiling Point:	50.5 °C (123 °F)
Flash Point:	Not applicable
Auto Ignition Temperature:	Not applicable
Flammable Limits in Air (% by Volume):	
Upper:	Not applicable
Lower:	
Solubility:	Miscible with water
Vapor Pressure:	25 kPa at 25°C (estimate)
Vapor Density:	1.3 (estimate)
Odor threshold (ppm):	0.25-10 ppm
Evaporation Rate:	No information found
Partition Coefficient (n-octanol/water):	No information found

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.

Conditions to Avoid: Incompatibles

Incompatible Materials: Bases, metals, oxidizing agents, acids, amines, reducing agents, organic materials

Hazardous Decomposition Products:	Hydrogen chloride, chlorine. May decompose upon heating to product corrosive and/or toxic fumes.
Possibility of Hazardous Reactions:	Can react vigorously, violently or explosively with incompatible materials listed above.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:	Oral Rat LD50: 240 mg/kg (estimate) Oral Rabbit LD50: 900 mg/kg Inhalation Rat LC50: 3124 mg/L 1 H
Acute Effects:	Strongly corrosive. May cause deep tissue damage. Harmful if swallowed.
Local Effects:	Causes severe burns. Mist or vapor extremely irritating to eyes and respiratory tract.
Sensitization:	Not a skin sensitizer.
Chronic Effects:	Corrosive. Prolonged or repeated skin contact causes serious tissue damage.
Carcinogenic Effects:	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. ACGIH: A4 – Not classifiable as a human carcinogen IARC: 3 – Not classifiable as to carcinogenicity of humans
Skin Corrosion/Irritation:	Corrosive to skin and eyes.
Epidemiology:	No epidemiological data is available for this product.
Mutagenicity:	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Neurological Effects:	No information found.
Reproductive Effects:	Contains no ingredient listed as toxic to reproduction.
Teratogenic Effects:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Target Organs and Symptoms:	Corrosive effects. Mucus membranes, skin, eyes, kidneys, liver, respiratory tract

12. ECOLOGICAL INFORMATION

Ecotoxicological Data:	LC50 Western mosquitofish (<i>Gambusia affinis</i>): 282 mg/L 96 H
Ecotoxicity:	This product may affect the acidity (pH) in water with risk of harmful effects to aquatic organisms.
Environmental Effects:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and Degradability:	Expected to be readily biodegradable.

Partition Coefficient (n-octanol/water): No information found.

13. DISPOSAL INFORMATION

Disposal Instructions: Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

Waste Codes: D002: Waste corrosive material (pH ≤ 2 or pH ≥ 12.5, or corrosive to steel)

14. TRANSPORT INFORMATION

DOT:

UN Number: UN1789
Proper Shipping Name: Hydrochloric Acid
Hazard Class: 8
Packaging Group: II
ERG Number: 157

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Inventory: Hydrochloric Acid; Water

U.S. EPCRA (SARA Title III):

Sections 311/312:	<u>Hazard Categories</u>	<u>List (Yes/No)</u>
	Section 311 – Hazardous Chemical	Yes
	Immediate Hazard	Yes
	Delayed Hazard	No
	Fire Hazard	No
	Pressure Hazard	No
	Reactivity Hazard	No

Section 302: Extremely Hazardous Substance: Hydrochloric Acid

Reportable Quantity: 5000 lbs

Threshold Planning Quantity: 500 lbs

Section 313: Toxic chemical or category: Hydrochloric Acid

De minimis concentration: 1.0%

CERCLA: Hydrochloric Acid: 5000 lbs

International Inventories:	Country(s) or Region	Inventory Name	On Inventory (Yes/No)*
	Australia	Australian Inventory of Chemical Substances (AICS)	Yes
	Canada	Domestic Substances List (DSL)	Yes
	Canada	Non-Domestic Substances List (NDSL)	No
	China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
	Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
	Europe	European List of Notified Chemical Substances (ELINCS)	No
	Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
	Korea	Existing Chemicals List (ECL)	Yes
	New Zealand	New Zealand Inventory	Yes
	Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*A "Yes" indicates that the listed component(s) of this product comply with the inventory requirements administered by the governing country(s)

16. OTHER INFORMATION

Product Use: Laboratory and/or field reagent

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Issue Date: 12/03/2012

Reason for Revision: Not applicable



Material Safety Data Sheet

Sodium Hydroxide Solution

MSDS Number 26500TDC (Reviewed: 09/12/2010)

6 Pages

Section 1: CHEMICAL PRODUCT and COMPANY IDENTIFICATION

- 1.1 Product Name** **Sodium Hydroxide solution**
Chemical Family Inorganic salt solution
Synonyms Sodium hydroxide, caustic, caustic soda
Formula NaOH
- 1.2 Manufacturer** TDC, LLC
1916 Farmerville Highway
Ruston, Louisiana 71270
Information (318) 242-5305
- 1.3 Emergency Contact** (800) 422-6274
(800) 424-9300 (CHEMTREC)

Section 2: COMPOSITION, INFORMATION ON INGREDIENTS

2.1 Chemical Ingredients (% by wt.)

		Typical Analysis
Sodium hydroxide	CAS #: 1310-73-2	49-51%
Sodium Carbonate	CAS #: 497-19-8	<0.2%
Sodium Chloride	CAS #: 7647-14-5	<1.0%
Water	CAS #: 7732-18-5	Balance

(See Section 8 for exposure guidelines)

Section 3: HAZARDS IDENTIFICATION
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NFPA: Health - 3 Flammability - 0 Reactivity - 2

Section 3: HAZARDS IDENTIFICATION (Cont.)**EMERGENCY OVERVIEW****Warning: Solution is highly alkaline**

Contact will cause marked eye irritation and possible corneal damage.
Skin contact will result in irritation and possible corrosion of the skin.
Ingestion will irritate/burn mouth, throat and gastrointestinal tract.

3.1 POTENTIAL HEALTH EFFECTS

EYE: Contact with the eyes will cause marked eye irritation and possibly severe corneal damage.

SKIN CONTACT: Contact with the skin will cause skin irritation or burning sensation. Prolonged contact will result in corrosion of the skin.

SKIN ABSORPTION: Absorption is unlikely to occur.

INGESTION: Ingestion will result in severe burning and corrosion of mouth, throat and the gastrointestinal tract.

INHALATION: Breathing product mist or spray may cause damage to the upper respiratory tract and lung tissue which could develop into chemical pneumonia depending upon severity of exposure.

CHRONIC EFFECTS/CARCINOGENICITY: Not listed as a carcinogen by NTP, IARC or OSHA.

Section 4: FIRST AID MEASURES

4.1 EYES: Immediately flush with large quantities of water for 15 minutes. Hold eyelids apart during irrigation to insure thorough flushing of the entire area of the eye. Obtain immediate medical attention.

4.2 SKIN: Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Obtain immediate medical attention.

4.3 INGESTION: DO NOT INDUCE VOMITING. If victim is conscious, immediately give 2 to 4 glasses of water. If vomiting does occur, repeat fluid administration. Obtain immediate medical attention.

4.4 INHALATION: Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. If breathing has ceased, clear airway and start mouth to mouth resuscitation. If heart has stopped beating, external heart massage should be applied. Obtain immediate medical attention.

Section 5: FIRE FIGHTING MEASURES**5.1 FLAMMABLE PROPERTIES**

FLASH POINT: Not flammable

METHOD USED: NA

5.2 FLAMMABLE LIMITS NA

5.3 EXTINGUISHING MEDIA: Water spray or foam or as appropriate for combustibles involved in fire.

5.4 FIRE & EXPLOSIVE HAZARDS: Solution is non-flammable. Keep containers/storage vessels in fire area cooled with water spray.

Section	5:	FIRE FIGHTING MEASURES, Cont.
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5.5 FIRE FIGHTING EQUIPMENT: Wear self-contained breathing apparatus, positive pressure, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section	6:	ACCIDENTAL RELEASE MEASURES
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6.1 Small releases: Confine and absorb small releases on sand earth or other inert absorbent. Neutralize solution with weak (~5%) acetic acid if necessary. DO NOT NEUTRALIZE WITH STRONG MINERAL ACIDS, THIS WILL EVOLVE LARGE AMOUNTS OF HEAT.

6.2 Large releases: Wear proper protective equipment. Confine area to qualified personnel. Shut off release if safe to do so. Dike spill area to prevent runoff into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above). DO NOT NEUTRALIZE WITH STRONG MINERAL ACIDS, THIS WILL EVOLVE LARGE AMOUNTS OF HEAT.

Section	7:	HANDLING and STORAGE
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7.1 Handling: Wear proper protective equipment (See Section 8). Avoid breathing product mist or spray. Avoid contact with skin and eyes. Use only in a well ventilated area. Dilute product only in enclosed containers. Wash thoroughly after handling.

7.2 Storage: Store in well ventilated areas. Do not store combustibles in the area of storage vessels. Keep away from any sources of heat or flame. Store tote and smaller containers out of direct sunlight at moderate temperatures [$<80^{\circ}$ F (27° C)]. (See Section 10.4 for materials of construction)

Section	8:	EXPOSURE CONTROLS, PERSONAL PROTECTION
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8.1 RESPIRATORY PROTECTION: If working near open container or storage vessel opening or open tank truck dome cover, wear self-contained breathing apparatus, positive pressure, MSHA/NIOSH (approved or equivalent).

8.2 SKIN PROTECTION: Neoprene rubber gloves, chemical suit and boots should be worn to prevent contact with the liquid. Wash contaminated clothing prior to reuse. Contaminated leather shoes cannot be cleaned and should be discarded.

8.3 EYE PROTECTION: Chemical goggles and a full face shield.

8.4 EXPOSURE GUIDELINES:

OSHA		ACGIH	
<u>TWA</u>	<u>STEL</u>	<u>TLV</u>	<u>STEL</u>
2 ppm		2 ppm (ceiling)	

8.5 ENGINEERING CONTROLS: Use adequate exhaust ventilation to prevent inhalation of product vapors. Where feasible scrub process or storage vessel vapors with caustic solution. Maintain eyewash/safety shower in areas where chemical is handled.

Section 9: PHYSICAL and CHEMICAL PROPERTIES

9.1 APPEARANCE:	Colorless to slightly hazy liquid.
9.2 ODOR:	No distinct odor.
9.3 BOILING POINT:	293°F (145°C)
9.4 VAPOR PRESSURE:	1.5 mm Hg, (0.2 Pa) @ 20°C
9.5 VAPOR DENSITY: (Air = 1.0)	Not applicable
9.6 SOLUBILITY IN WATER:	Complete
9.7 SPECIFIC GRAVITY:	1.52 (12.66 lbs/gal) @ 20°C
9.8 FREEZING POINT:	Approximately 58°F (14°C)
9.9 pH:	14.0
9.10 VOLATILE:	Not determined

Section 10: STABILITY and REACTIVITY

10.1 STABILITY: This is a stable material

10.2 HAZARDOUS POLYMERIZATION: Will not occur.

10.3 HAZARDOUS DECOMPOSITION PRODUCTS: None

10.4 INCOMPATIBILITY: Acids will cause the release of heat. Sodium hydroxide solution is not compatible with zinc, aluminum or their alloys (i.e. galvanized metals, etc.). These materials of construction should not be used in handling systems or storage containers for this product. (SEE Section 7.2, Storage)

Section 11: TOXICOLOGICAL INFORMATION

11.1 ORAL: Data not available

11.2 DERMAL: LD₅₀: 1350 mg/kg (rabbit)

11.3 INHALATION: Not available

11.4 CHRONIC/CARCINOGENICITY: No evidence available

11.5 TERATOLOGY: Data not available

11.6 REPRODUCTION: Data not available

11.7 MUTAGENICITY: Data not available

Section 12: ECOLOGICAL INFORMATION

None available

Section	13: DISPOSAL CONSIDERATIONS
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If released to the environment for other than its intended purpose, this product pH will be high enough to meet the definition of a corrosive waste, D002. DO NOT ALLOW into any sewers, on the ground, or into any body of water.

Section	14: TRANSPORT INFORMATION
----------------	----------------------------------

14.1 DOT Shipping Name:	Sodium hydroxide solution
14.2 DOT Hazard Class:	8
14.3 UN/NA Number:	UN1824
14.4 Packing Group:	II
14.5 DOT Placard:	Corrosive
14.6 DOT Label(s):	Corrosive
14.7 IMO Shipping Name:	Sodium hydroxide solution
14.8 RQ (Reportable Quantity):	1,000 lbs (454 Kg) 100% basis
14.9 RR STCC Number:	

Section	15: REGULATORY INFORMATION
----------------	-----------------------------------

15.1 OSHA:	This product is listed as a hazardous material under criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200.	
15.2 SARA TITLE III:	a. EHS (Extremely Hazardous Substance) List:	No
	b. Section 311/312, (Tier I,II) Categories:	Immediate (acute) Yes
		Fire No
		Sudden release No
		Reactivity Yes
		Delayed (chronic) No
	c. Section 313 (Toxic Release Report-Form R):	No
	d. TPQ (Threshold Planning Quantity):	No
15.3 CERCLA/SUPERFUND:	RQ (Reportable Quantity)	1,000 lbs (454 Kg)
15.4 TSCA (Toxic Substance Control Act) Inventory List:		Yes
15.5 RCRA (Resource Conservation and Recovery Act) Status:		Yes (See Section 13)
15.6 WHMIS (Canada) Hazard Classification:		E
15.7 DOT Hazardous Material: (See Section 14)		Yes
15.8 CAA Hazardous Air Pollutant (HAP)		No

Section 16: OTHER INFORMATION

REVISIONS: The MSDS was formatted to comply with ANSI Standard Z400.1-2004
Revised Logo and Emergency Telephone Number, 02/23/2007.
Reviewed 9/12/10.

THE INFORMATION PUBLISHED IN THIS MATERIAL SAFETY DATA SHEET HAS BEEN COMPILED FROM OUR EXPERIENCE AND OSHA, ANSI, NFPA, DOT, ERG, AND CHRIS. IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE SUITABILITY OF THIS INFORMATION FOR THE ADOPTION OF NECESSARY SAFETY PRECAUTIONS. WE RESERVE THE RIGHT TO REVISE MATERIAL SAFETY DATA SHEETS PERIODICALLY AS NEW INFORMATION BECOMES AVAILABLE.



Material Safety Data Sheet

Issue Date: 09-JUN-2011
Supercedes: 05-JAN-2010

KLARAIID IC1172

1 Identification

Identification of substance or preparation

KLARAIID IC1172

Product Application Area

Waste treatment additive.

Company/Undertaking Identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355-3300, F 215 953 5524

Emergency Telephone

(800) 877-1940

Prepared by Product Stewardship Group: T 215-355-3300 Prepared on: 09-JUN-2011

2 Hazard(s) identification

EMERGENCY OVERVIEW

WARNING

May cause moderate irritation to the skin. Severe irritant to the eyes. Mists/aerosols cause irritation to the upper respiratory tract.

DOT hazard is not applicable

Odor: Mild; Appearance: Colorless To Light Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause moderate irritation to the skin.

ACUTE EYE EFFECTS:

Severe irritant to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols cause irritation to the upper respiratory tract.

INGESTION EFFECTS:

May cause gastrointestinal irritation.

TARGET ORGANS:

Repeated skin contact may cause sensitization.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

3 Composition / information on ingredients

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range (w/w%)
12042-91-0	ALUMINUM CHLORHYDROXIDE	30-60

4 First-aid measures

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 2-8 fluid ounces (60-240 mL) of milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 Fire-fighting measures

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

hydrogen chloride

FLASH POINT:

> 200F > 93C P-M(CC)

6 Accidental release measures

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 Handling and storage

HANDLING:

Normal chemical handling.

STORAGE:

Keep containers closed when not in use. Do not freeze. If frozen, thaw and mix completely prior to use.

8 Exposure controls / personal protection

EXPOSURE LIMITS**CHEMICAL NAME****ALUMINUM CHLORHYDROXIDE**

PEL (OSHA): LIMITS HAVE NOT BEEN ESTABLISHED BY US OSHA.

TLV (ACGIH): TWA = 1 MG/M3; A4 (Aluminum metal and insoluble compounds, respirable fraction)

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE. USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS. If air-purifying respirator use is appropriate, use any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100.

SKIN PROTECTION:

rubber, butyl, viton or neoprene gloves -- Wash off after

each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 Physical and chemical properties

Spec. Grav. (70F,21C)	1.339	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	19	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-7		
Viscosity(cps 70F,21C)	45	% Solubility (water)	100.0

Odor	Mild
Appearance	Colorless To Light Yellow
Physical State	Liquid
Flash Point	P-M(CC) > 200F > 93C
pH As Is (approx.)	3.7
Evaporation Rate (Ether=1)	< 1.00
Percent VOC:	0.0

NA = not applicable ND = not determined

10 Stability and reactivity

CHEMICAL STABILITY:

Stable under normal storage conditions.

POSSIBILITY OF HAZARDOUS REACTIONS:

Contact with water reactive compounds may cause fire or explosion.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

hydrogen chloride

11 Toxicological information

Oral LD50 RAT: >5000 mg/kg
NOTE - Calculated value according to GHS additivity formula
Dermal LD50 RABBIT: >5000 mg/kg
NOTE - Calculated value according to GHS additivity formula

12 Ecological information

AQUATIC TOXICOLOGY

Ceriodaphnia 48 Hour Static Renewal Bioassay (pH adjusted)

LC50= 750; No Effect Level= 156 mg/L

Ceriodaphnia 7 Day Chronic Bioassay

Reproduction NOEL= 1.5; Reproduction LOEC= 3.1 mg/L

Daphnia magna 48 Hour Static Screen (pH adjusted)

20% Mortality= 5000; 0% Mortality= 2500 mg/L

Fathead Minnow 7 Day Chronic Bioassay

Growth NOEL= 5; Growth LOEL= 10 mg/L

Fathead Minnow 96 Hour Static Acute Bioassay

LC50= 517; No Effect Level= 370 mg/L

Rainbow Trout 96 Hour Static Acute Bioassay

LC50= 390; No Effect Level= 210 mg/L

BIODEGRADATION

No Data Available.

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 Transport information

Transportation Hazard: Not Applicable

DOT: Not Regulated

DOT EMERGENCY RESPONSE GUIDE #: Not applicable

Note: Some containers may be DOT exempt, please check BOL for exact container classification

IATA: Not Regulated

IMDG: Not Regulated

15 Regulatory information

TSCA:

All components of this product are included on or are in compliance with the U.S. TSCA regulations.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

No regulated constituent present at OSHA thresholds

FOOD AND DRUG ADMINISTRATION:

21 CFR 176.170 (components of paper and paperboard in contact with aqueous and fatty foods)

NSF Registered and/or meets USDA (according to 1998 Guidelines):

Registration number: Not Registered

This product contains ingredients that have been determined as safe for use in sewage and/or drain lines. (L1)

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65):

No regulated constituents present

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other information

HMIS vII		CODE TRANSLATION
Health	2	Moderate Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
	-----	-----	-----
MSDS status:	30-JAN-1997		** NEW **
	20-FEB-1997	12	30-JAN-1997
	01-MAY-1997	8	20-FEB-1997
	22-OCT-1997	15	01-MAY-1997
	18-JAN-1999	15	22-OCT-1997
	04-APR-2000	12	18-JAN-1999
	30-AUG-2000	4	04-APR-2000
	01-JUN-2001	15	30-AUG-2000
	12-NOV-2002	3	01-JUN-2001
	07-JUN-2005	12	12-NOV-2002
	07-JUN-2006	8	07-JUN-2005
	19-JUN-2009	5,8,10	07-JUN-2006
	25-NOV-2009	2,5,14	19-JUN-2009
	05-JAN-2010	14	25-NOV-2009
	09-JUN-2011	10,11	05-JAN-2010

LOCTITE® 567™

(TDS for the new formulation of LOCTITE® 567™) October 2017

PRODUCT DESCRIPTION

LOCTITE® 567™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Methacrylate ester
Appearance (uncured)	Smooth, creamy, off-white paste ^{LMS}
Components	One component - requires no mixing
Viscosity	High
Cure	Anaerobic
Secondary Cure	Activator
Application	Thread sealing
Strength	Low

This Technical Data Sheet is valid for LOCTITE® 567™ manufactured from the dates outlined in the "Manufacturing Date Reference" section.

LOCTITE® 567™ is designed for the locking and sealing of metal tapered threads and fittings. The product cures when confined in the absence of air between close fitting metal surfaces and prevents loosening and leakage from shock and vibration. LOCTITE® 567™ provides robust curing performance. It not only works on active metals (e.g. brass, copper) but also on passive substrates such as stainless steel and plated surfaces. The high lubricating properties of this compound prevent galling on stainless steel, aluminum and all other metal pipe threads and fittings. The product offers high temperature performance and oil tolerance. It tolerates minor surface contaminations from various oils, such as cutting, lubrication, anti-corrosion and protection fluids. LOCTITE® 567™ is recommended for industrial applications in the chemical processing, petroleum refining, pulp/paper, waste treatment, textile, utilities/power generation, marine, automotive, industrial equipment, gas compression and distribution industries. It is also recommended for industrial plant fluid power systems.

UL Classification

Classified by Underwriters Laboratories Inc.® MH8007 - Fire hazard is small. No flash point in liquid state. Ignition temperature 455°C. For use in devices handling gasoline, petroleum oils, natural gas (pressure not over 300 PSIG), butane and propane not exceeding 2 in. pipe size. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

ULC Classification

Classified by Underwriters Laboratories of Canada Inc. MH27131 - An anaerobic material which contains a lubricant and sets to form a tight seal and maintain a controlled locking strength. For use in joining threaded pipe connections or other closely fitting metal parts in devices handling natural gas and methane, gasoline and petroleum oils, and propane and butane at pressures not exceeding 13,790 kPa. Ignition temperature greater than 460 °C. Classed less than 10 below paraffin oil with respect to fire hazard. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

NSF International

Certified to ANSI/NSF Standard 61 for use in commercial and residential potable water systems not exceeding 82° C. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

Approved by the Australian Gas Association Certificate number 3207 Class III rated working pressure 2000 kPa, working temperature -10 to 205°C. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

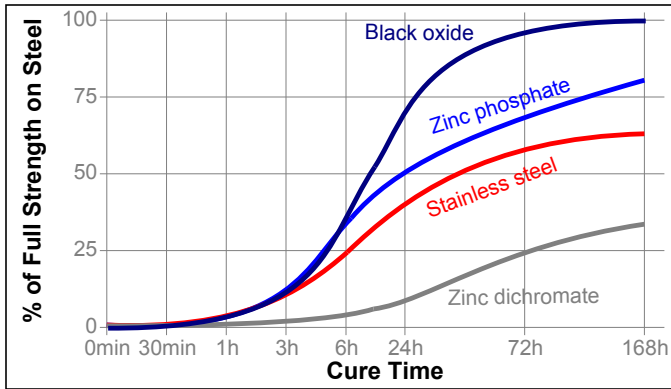
TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.1
Flash Point - See SDS	
Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):	
Spindle 7, speed 2 rpm	280,000 to 800,000 ^{LMS}

TYPICAL CURING PERFORMANCE

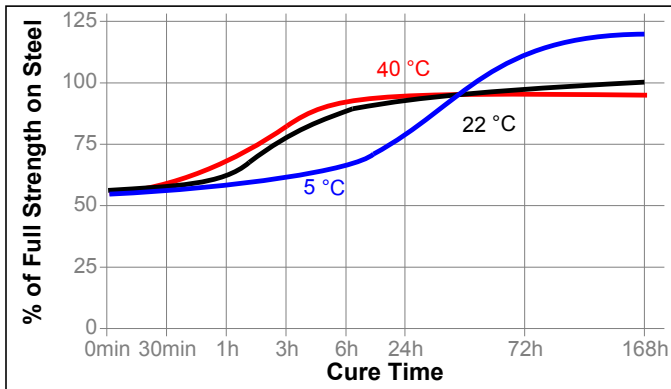
Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The graph below shows the breakaway strength developed with time on M10 black oxide bolts and steel nuts compared to different materials and tested according to ISO 10964.



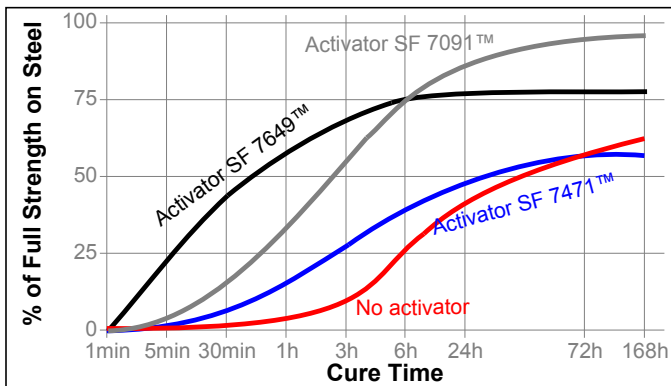
Cure Speed vs. Temperature

The rate of cure will depend on the temperature. The graph below shows the breakloose strength developed with time at different temperatures on NPT 3/8 malleable steel tees and steel plugs, pretorqued to 27 N·m and tested according to ASTM D6396.



Cure Speed vs. Activator

Where cure speed is unacceptably long, or large gaps are present, applying activator to the surface will improve cure speed. The graph below shows the breakloose strength developed with time using Activator SF 7471™, SF 7649™ and SF 7091™ on M10 stainless steel nuts and bolts and tested according to ISO 10964.



TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 4 hours @ 22 °C

Breakaway Torque, ISO 10964:

3/8 x 24 steel nuts (grade 2) and bolts (grade 2)	N·m (lb.in.)	≥0.3 ^{LMS} (≥2.6)
---	--------------	----------------------------

After 24 hours @ 22 °C

Removal Torque, ASTM D 6396, Pre-torqued to 27 N·m:

3/8 NPT steel pipe tees and plugs	N·m (lb.in.)	50 (445)
-----------------------------------	--------------	----------

Breakaway Torque, ISO 10964, Unseated:

M10 black oxide bolts and steel nuts	N·m (lb.in.)	12 (110)
M10 brass nuts and bolts	N·m (lb.in.)	12 (105)

M10 zinc dichromate nuts and bolts	N·m (lb.in.)	2.6 (22)
M10 zinc phosphate nuts and bolts	N·m (lb.in.)	9.3 (82)

M10 stainless steel nuts and bolts	N·m (lb.in.)	8.0 (70)
------------------------------------	--------------	----------

M6 black oxide bolts and steel nuts	N·m (lb.in.)	0.9 (8)
-------------------------------------	--------------	---------

M16 black oxide steel nuts and bolts	N·m (lb.in.)	13 (115)
--------------------------------------	--------------	----------

3/8 x 24 steel nuts (grade 2) and bolts (grade 2)	N·m (lb.in.)	≥1.7 ^{LMS} (≥15)
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Prevail Torque, ISO 10964, Unseated:

M10 black oxide bolts and steel nuts	N·m (lb.in.)	1.9 (17)
M10 brass nuts and bolts	N·m (lb.in.)	2.2 (19)

M10 zinc dichromate nuts and bolts	N·m (lb.in.)	1.4 (12)
M10 zinc phosphate nuts and bolts	N·m (lb.in.)	1.2 (11)

M10 stainless steel nuts and bolts	N·m (lb.in.)	1.3 (12)
------------------------------------	--------------	----------

M6 black oxide bolts and steel nuts	N·m (lb.in.)	0.2 (1.3)
-------------------------------------	--------------	-----------

M16 black oxide steel nuts and bolts	N·m (lb.in.)	2.3 (20)
--------------------------------------	--------------	----------

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:

M10 black oxide bolts and steel nuts	N·m (lb.in.)	17 (150)
--------------------------------------	--------------	----------

Prevail Torque, ISO 10964, Pre-torqued to 5 N·m:

M10 black oxide bolts and steel nuts	N·m (lb.in.)	2.3 (20)
--------------------------------------	--------------	----------

After 1 week @ 22 °C

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:

M10 zinc phosphate nuts and bolts	N·m (lb.in.)	17 (150)
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TYPICAL ENVIRONMENTAL RESISTANCE

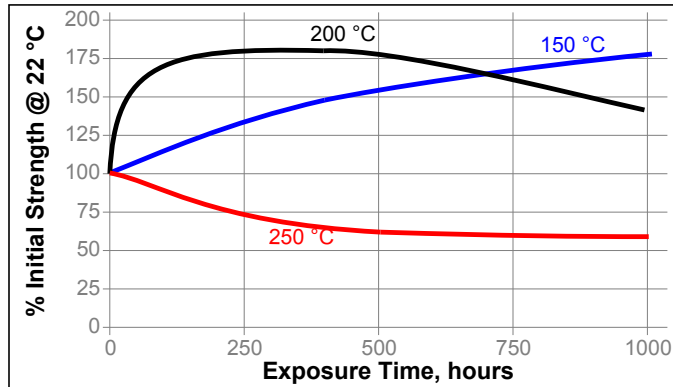
Cured for 168 hours @ 22 °C

Breakloose Torque, ISO 10964, Pre-torqued to 5 N·m:

M10 zinc phosphate steel nuts and bolts

Heat Aging

Aged at temperature indicated and tested @ 22 °C

**Cold Strength**

This product has been tested to -75°C (-100 F). This product may work below this temperature, but has not been tested.

Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength		
		100 h	500 h	1000 h
Motor oil (MIL-L-46152)	125	100	95	100
Unleaded gasoline	22	95	90	85
Brake fluid	22	95	100	110
Ethanol	22	95	90	85
Acetone	22	85	60	55
Water/glycol 50/50	87	90	85	95
E85 Ethanol fuel	22	95	85	75
B100 Bio-Diesel	22	110	105	105
DEF (AdBlue®)	22	115	125	120

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Safety Data Sheet (SDS).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

This product is not normally recommended for use on plastics (particularly thermoplastic materials where stress cracking of the plastic could result). Users are recommended to confirm compatibility of the product with such substrates.

Directions for use:**For Assembly**

- For best results, clean all surfaces (external and internal) with a LOCTITE® cleaning solvent and allow to dry.
- If the material is an inactive metal or the cure speed is too slow, spray with LOCTITE® SF 7471™ or LOCTITE® SF 7649™ and allow to dry.

- Apply a 360° bead of product to the leading threads of the male fitting, leaving the first thread free. Force the material into the threads to thoroughly fill the voids. For bigger threads and voids, adjust product amount accordingly and apply a 360° bead of product on the female threads also.
- Using compliant practices, assemble and wrench tighten fittings in accordance with manufacturers recommendations.
- Properly tightened fittings will seal instantly to moderate pressures. For maximum pressure resistance and solvent resistance allow the product to cure a minimum of 24 hours.

For Disassembly

- Remove with standard hand tools.
- Where hand tools do not work because of excessive engagement length or large diameters (over 1"), apply localized heat to approximately 250 °C (480F). Disassemble while hot.

For Cleanup

- Cured product can be removed with a combination of soaking in a LOCTITE® solvent and mechanical abrasion such as a wire brush.

Loctite Material Specification^{LMS}

LMS dated October 7, 2015. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Manufacturing Date Reference

This Technical Data Sheet is valid for LOCTITE® 567™ manufactured from the dates below:

Made in:	First manufacturing date:
U.S.A.	May 2016
China	May 2016
Brazil	April 2016

Conversions

(°C x 1.8) + 32 = °F
 kV/mm x 25.4 = V/mil
 mm / 25.4 = inches
 µm / 25.4 = mil
 N x 0.225 = lb

$N/mm \times 5.71 = lb/in$
 $N/mm^2 \times 145 = psi$
 $MPa \times 145 = psi$
 $N \cdot m \times 8.851 = lb \cdot in$
 $N \cdot m \times 0.738 = lb \cdot ft$
 $N \cdot mm \times 0.142 = oz \cdot in$
 $mPa \cdot s = cP$

Note:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.

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Trademark usage: [Except as otherwise noted] All trademarks in this document are trademarks and/or registered trademarks of Henkel and its affiliates in the U.S. and elsewhere.

Reference 1.7



LOCTITE® 7649™

December 2009

PRODUCT DESCRIPTION

LOCTITE® 7649™ provides the following product characteristics:

Technology	Activator for LOCTITE® anaerobic adhesives and sealants
Chemical Type	Copper salt and Aliphatic amine
Solvent	Acetone
Appearance	Transparent, green liquid ^{LMS}
Viscosity	Very low
Cure	Not applicable
Application	Cure acceleration of LOCTITE® anaerobic products

LOCTITE® 7649™ is used where increased cure speed of LOCTITE® anaerobic products is required. It is especially recommended for applications with passive metals or inert surfaces and with large bond gaps. LOCTITE® 7649™ is particularly recommended when prevailing temperature is low (<15 °C).

NSF International

Certified to ANSI/NSF Standard 61 for use in commercial and residential potable water systems not exceeding 82° C. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

NSF International

Registered to NSF Category P1 for use as a sealant where there is no possibility of food contact in and around food processing areas. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

TYPICAL PROPERTIES

Specific Gravity @ 25 °C	0.79
Viscosity @ 20 °C, mPa·s (cP)	2
Flash Point - See MSDS	
Drying Time @ 20 °C, seconds	30 to 70
On Part Life, days	≤30

TYPICAL PERFORMANCE

Fixture time and cure speed achieved as a result of using LOCTITE® 7649™ depend on the adhesive used and the substrate bonded.

Fixture Time, ISO 4587, seconds:	
Steel (degreased) using LOCTITE® 326™, single side activation	≤30

(Fixture time is defined as the time to develop a shear strength of 0.1 N/mm²)

Handling precautions

Activator must be handled in a manner applicable to highly flammable materials and in compliance with relevant local regulations.

The solvent can affect certain plastics or coatings. It is recommended to check all surfaces for compatibility before use.

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected with a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Under no circumstances should activator and adhesive be mixed directly as liquids.

Use only in a well ventilated area

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

Directions for use:

1. Spray or brush on the activator on both mating surfaces to be bonded. For small gaps, treatment of only one surface may be adequate. Contaminated surfaces may need repeated treatment or special degreasing prior to activation to remove any dissolvable contamination. Porous surfaces may need two treatments of activator.
2. Allow the solvent time to evaporate under good ventilation until the surfaces are completely dry.
3. After activation, parts should be bonded within 1 month. Contamination of the surface before bonding should be prevented.
4. Apply the Loctite Anaerobic product to one or both surfaces and assemble parts immediately.
5. Where possible, move surfaces in relation to each other for a few seconds on assembly to properly distribute the adhesive and for maximum activation..
6. Secure the assembly and await fixturing before any further handling..



Loctite Material Specification^{LMS}

LMS dated September 01, 1995. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Storage

This activator is classified as **HIGHLY FLAMMABLE** and must be stored in an appropriate manner in compliance with relevant regulations. Do not store near oxidising agents or combustible materials. Store product in the unopened container in a dry location. Storage information may also be indicated on the product container labelling.

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1.3

Water Technologies & Solutions fact sheet

Kleen* MCT405

liquid alkaline membrane cleaner

- Designed to provide excellent cleaning performance for prolonged membrane life.
- Specially formulated to provide superior cleaning and removal of organics, biofilm and colloidal materials from membrane surfaces.
- Buffered to maintain desired pH over a range of dilutions.
- Enhanced performance at elevated temperatures.
- For use on PA membrane elements. Do not use on CA membranes.
- NSF certified for use in potable water applications [certified to NSF/ANSI Standard 60].

description and use

Kleen MCT405 is a liquid proprietary caustic blend containing surfactants and detergents. It is recommended for use in removing organic foulants such as oils and bioproteins from membrane elements. This highly effective product provides superior cleanings, resulting in longer system running times.

typical applications

During the operation of a membrane separation system, organic materials and suspended solids in the incoming water can accumulate on the membrane surface. Fouling from these species impedes the flow of water through the membrane. This can result in unacceptably low production, high operating pressure, or an excessive pressure drop in the system, which may lead to irreversible membrane damage. Additionally, the accumulation of deposit next to the membrane surface can increase the amount of dissolved material passing through the membrane, resulting in product water of unacceptable quality.

Before the deposit accumulates to a level where product water flow or quality declines, or membrane damage occurs, it should be removed through a clean-in-place (CIP) off-line cleaning. Indications of the need for cleaning include a significant decrease in normalized permeate flow, a significant increase in pressure drop across the system (or individual stage), or an increase in the normalized salt passage such that product quality is unacceptable. Your SUEZ representative can assist you with monitoring your system and determining when cleaning is advised.

Regular cleanings with Kleen MCT405 will help to preserve the life of your membranes when used in tandem with a low pH cleaner for scale and particulate removal such as Kleen MCT103.

treatment and feeding requirements

Do not use on CA membranes.

Feed System - This product should be used in conjunction with membrane cleaning equipment supplied by the manufacturer of the membrane /RO system. If such a system is not present, contact your SUEZ representative for information on fabricating or obtaining a cleaning system.

Dilution - The product must be diluted prior to introduction into the membrane system. The recommended dilution for this product is one pound (0.45 kg) of Kleen MCT405 per 5 gallons (19 L) of water [approximately one gallon (3.8 L) of Kleen MCT405 for each 50 gallons (189 L) of water].

LENNTECH

info@lennotech.com Tel. +31-152-610-900

www.lennotech.com Fax. +31-152-616-289

The target conductivity range for this dilution of Kleen MCT405 is 2,400 to 3,000 micromhos. Contact your SUEZ representative for recommended cleaning solution volumes based upon your individual system requirements.

safety precautions

A Material Safety Data Sheet containing detailed information about this product is available upon request.

Corrosion-resistant materials should be used for the storage and handling of this product. Discuss recommended materials of construction with your SUEZ representative.

general cleaning instructions

The following general cleaning procedure can be followed. For the optimum cleaning procedure for your system, contact your SUEZ representative.

1. Inspect cleaning tank, hoses, and cartridge filters. Clean tank and flush hoses if necessary. Install new cartridge filters.
2. Fill cleaning tank with RO permeate or DI water. Turn on agitator or tank recirculation pump.
3. Slowly add the recommended amount of Kleen MCT405 to the cleaning tank and allow to mix thoroughly.
4. Check solution temperature. If solution temperature is lower than recommended level, adjust heating control to provide optimum temperature. If manufacturer's recommendation is not available, contact your SUEZ representative. Do not allow the temperature to exceed 95°F (34°C).
5. Check solution pH. The solution pH should be 11.0 to 12.0, or as recommended by the membrane manufacturer. If pH is too low, adjust pH upward with NaOH, or other chemical as recommended by the membrane manufacturer. If pH is too high, adjust with hydrochloric acid. Consult with your SUEZ representative regarding your system's ability to tolerate this pH range.
6. Circulate solution in the direction of feed flow for 30 minutes. Circulate at the flow rate recommended by the membrane or system manufacturer. If manufacturer's recommendation is not available, contact your SUEZ representative. Pressure should be low enough so that minimal permeate is produced during cleaning, but always less than 60 psig (4.2 kg/cm²). In cases of heavy fouling, the first return flow (up to 15% of the cleaning tank volume) should be diverted to drain to prevent redeposition of removed solids. For optimum results, each stage must be cleaned separately in a multistage system.
7. This product is a moderate foamer. Minimize foaming in the CIP tank by placing the permeate and concentrate return lines under the liquid level in the CIP tank. A spray-hose may be used for periodic knocking-down of the foam. DO NOT apply an antifoam; most antifoams are not compatible with PA membranes.
8. If the first stage cleaning solution becomes turbid or discolored, dump the tank and prepare a fresh cleaning solution before proceeding. If solution pH or temperature moves out of the recommended range, a new solution should be prepared.
9. Rinse with RO permeate water before returning system to service.
10. When returning the unit to service, divert product water to drain until any residual cleaning solution has been rinsed from system.

Depending on the nature of the fouling, a soak period may be necessary for optimum results. Consult your SUEZ representative for details.



Material Safety Data Sheet

Issue Date: 19-OCT-2010
Supersedes: 10-FEB-2010

KLEEN MCT405

1 Identification

Identification of substance or preparation
KLEEN MCT405

Product Application Area
Membrane cleaner

Company/Undertaking Identification
GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355-3300, F 215 953 5524

Emergency Telephone
(800) 877-1940

Prepared by Product Stewardship Group: T 215-355-3300 Prepared on: 19-OCT-2010

2 Hazard(s) identification

EMERGENCY OVERVIEW

DANGER

Severe irritant to the skin, possibly corrosive. Severe irritant to the eyes, possibly corrosive. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard: Corrosive to aluminum
Odor: Mild; Appearance: Light Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; Severe irritant to the skin, possibly corrosive.

ACUTE EYE EFFECTS:

Severe irritant to the eyes, possibly corrosive.

ACUTE RESPIRATORY EFFECTS:

Primary route of exposure;Mists/aerosols may cause irritation to

upper respiratory tract.

INGESTION EFFECTS:

May cause severe irritation or burning of the gastrointestinal tract.

TARGET ORGANS:

Prolonged or repeated exposures may cause defatting-type dermatitis and/or primary irritant dermatitis. Product or product component may increase the risk of cancer based on limited animal data.

MEDICAL CONDITIONS AGGRAVATED:

Pre-existing skin disorders.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin, irritation, and/or tearing of eyes (direct contact).

3 Composition / information on ingredients

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation. This product is subject to the Pennsylvania and New Jersey Worker and Community Right to Know Law.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range (w/w%)
5064-31-3	NITRILOTRIACETIC ACID, TRISODIUM SALT (NTA.3NA) Possible human carcinogen (IARC=2B)	0.1-1.0
50-00-0	FORMALDEHYDE Highly toxic (by inhalation); Toxic (by ingestion and skin absorption); irritant (eyes, skin, and respiratory); sensitizer (skin and respiratory); human carcinogen (IARC=1; NTP=anticipated)	0.1-1.0
139-89-9	N-HYDROXYETHYLENEDIAMINE TRIACETIC ACID TRISODIUM SALT Irritant (eyes)	7-13
497-19-8	SODIUM CARBONATE Irritant (eyes)	3-7
25155-30-0	SODIUM DODECYLBENZENESULFONATE Moderate irritation (skin, respiratory tract); severe irritant (eyes) may cause primary contact dermatitis	1-5
1310-73-2	SODIUM HYDROXIDE Corrosive; toxic (by ingestion)	1-5

NON-HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
7732-18-5	WATER
28348-53-0	BENZENESULFONIC ACID, (1-METHYLETHYL)-, SODIUM SALT
527-07-1	SODIUM GLUCONATE

4 First-aid measures

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get medical attention if irritation develops or persists.

EYE CONTACT:

URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Rinse mouth with plenty of water. Dilute contents of stomach using 4-10 fluid ounces (120-300 mL) of milk or water.

NOTES TO PHYSICIANS:

Material is corrosive. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage.

5 Fire-fighting measures

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

oxides of carbon, nitrogen and sulfur

FLASH POINT:

> 213F > 101C P-M(CC)

6 Accidental release measures

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 Handling and storage

HANDLING:

Alkaline. Do not mix with acidic material.

STORAGE:

Keep containers closed when not in use. Protect from freezing. Do not store near strong acids. Use proper containers.

8 Exposure controls / personal protection

EXPOSURE LIMITS

CHEMICAL NAME

NITRILOTRIACETIC ACID, TRISODIUM SALT (NTA.3NA)

PEL (OSHA): NOT DETERMINED

TLV (ACGIH): NOT DETERMINED

FORMALDEHYDE

PEL (OSHA): 0.75 PPM (STEL-2PPM)

TLV (ACGIH): 0.3 PPM-CEILING

N-HYDROXYETHYLENEDIAMINE TRIACETIC ACID TRISODIUM SALT

PEL (OSHA): NOT DETERMINED

TLV (ACGIH): NOT DETERMINED

SODIUM CARBONATE

PEL (OSHA): NOT DETERMINED

TLV (ACGIH): NOT DETERMINED

SODIUM DODECYLBENZENESULFONATE

PEL (OSHA): NOT DETERMINED

TLV (ACGIH): NOT DETERMINED

SODIUM HYDROXIDE

PEL (OSHA): 2 MG/M3

TLV (ACGIH): TWA (Ceiling) = 2 MG/M3

8) EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

ENGINEERING CONTROLS:

adequate ventilation

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.

If air-purifying respirator use is appropriate, use organic vapor cartridges and any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100.

SKIN PROTECTION:

rubber, butyl or viton gloves -- Wash off after each use.

Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 Physical and chemical properties

Spec. Grav. (70F, 21C)	1.138	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	28	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-2		
Viscosity (cps 70F, 21C)	12	% Solubility (water)	100.0

Odor	Mild
Appearance	Light Yellow

Physical State		Liquid
Flash Point	P-M(CC)	> 213F > 100C
pH As Is (approx.)		12.9
Evaporation Rate (Ether=1)		< 1.00
Percent VOC:		0.0

NA = not applicable ND = not determined

10 Stability and reactivity

CHEMICAL STABILITY:

Stable under normal storage conditions.

POSSIBILITY OF HAZARDOUS REACTIONS:

Contact with strong acids may cause a violent reaction releasing heat.

INCOMPATIBILITIES:

May react with acids or strong oxidizers.

DECOMPOSITION PRODUCTS:

oxides of carbon, nitrogen and sulfur

11 Toxicological information

No Data Available.

12 Ecological information

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Renewal Bioassay (pH adjusted)

LC50= 696.5; No Effect Level= 313 mg/L

Fathead Minnow 96 Hour Static Renewal Bioassay

LC50= 164.9; No Effect Level= 125 mg/L

Rainbow Trout 96 Hour Static Renewal Bioassay

LC50= 258.2; No Effect Level= 125 mg/L

BIODEGRADATION

No Data Available.

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D002=Corrosive(pH).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 Transport information

Transportation Hazard: Corrosive to aluminum
 DOT: CORROSIVE LIQUID, N.O.S. (SODIUM DODECYLBENZENESULFONATE,
 SODIUM HYRDOXIDE)
 8, UN1760, PG III, (SODIUM DODECYLBENZENESULFONATE) RQ
 DOT EMERGENCY RESPONSE GUIDE #: 154
 Note: Some containers may be DOT exempt, please check BOL for
 exact container classification
 IATA: CORROSIVE LIQUID, N.O.S. (SODIUM DODECYLBENZENESULFONATE,
 SODIUM HYRDOXIDE)
 8, UN1760, PG III
 IMDG: CORROSIVE LIQUID, N.O.S. (SODIUM DODECYLBENZENESULFONATE,
 SODIUM HYRDOXIDE)
 8, UN1760, PG III

15 Regulatory information

TSCA:

All components of this product are included on or are in
 compliance with the U.S. TSCA regulations.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

5,553 gallons due to SODIUM DODECYLBENZENESULFONATE;

NSF Registered and/or meets USDA (according to 1998 Guidelines):

Registration number: Not Registered

SARA SECTION 312 HAZARD CLASS:

Immediate (acute); Delayed (Chronic)

SARA SECTION 302 CHEMICALS:

No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC

ENFORCEMENT ACT (PROPOSITION 65):

This product contains one or more ingredients known to the state of
 California to cause cancer.

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other information

HMIS vII		CODE TRANSLATION
Health	3	Serious Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	ALK	pH above 12.0
(1) Protective Equipment	B	Goggles, Gloves

(1) refer to section 8 of MSDS for additional protective equipment
 recommendations.

CHANGE LOG

EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
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MSDS status: 07-APR-2009
10-FEB-2010 14
19-OCT-2010 14

** NEW **
07-APR-2009
10-FEB-2010

Water Technologies & Solutions fact sheet

Kleen* MCT105

NSF certified low pH membrane cleaner

- Compatible with all thin-film and cellulose acetate membranes
- Low foaming liquid product
- Buffered to maintain an effective pH throughout the cleaning process
- NSF certified for use in potable water applications (certified to NSF/ANSI Standard 60)

description

Kleen MCT105 is a low pH liquid cleaner, containing a blend of acids, chelants, and complexing agents. The product is specifically designed to remove deposited metals (e.g. aluminum and iron) and scale deposits (e.g. calcium carbonate) from thin-film and cellulose acetate membranes. This highly effective product provides superior cleanings, resulting in restored system performance.

typical applications

When scaling or fouling in RO membranes accumulates to a level where RO performance is impacted, a clean-in-place (CIP), off-line cleaning should be conducted. Indications of the need for cleaning can include decreased normalized permeate flow, increased operating pressure, increased differential pressures, and increased salt passage. Maintaining normalized data is strongly recommended to properly monitor these trends.

Clean-in-place procedures should specify separate acid and alkaline cleaning steps. The sequence of these steps is dependent upon the nature of the foulant(s).

Consult your SUEZ representative for normalization tools, cleaning tips, and alkaline cleaner product recommendations.

general cleaning guidelines

Always follow the cleaning procedures outlined in the manufacturer's Operation and Maintenance Manual for your specific system.

Recommended Dilution – Use one pound (0.45 kg) of Kleen MCT105 per 5 gallons (19 L) of water, or one gallon (3.8 L) of MCT105 per 50 gallons (189 L) of water. The dosage may be slightly reduced if the degree of fouling is low to moderate.

Contact time– CIP cleaning duration can vary depending upon the severity of fouling. Typical contact time is 1 to 3 hours, however up to 24 hours soak time may be necessary for severe fouling.

System Rinsing – The system should be rinsed between acid and alkaline cleanings to minimize heat generation and cleaner deactivation.

System Flush – After cleaning, the system must be flushed until the pH of the concentrate, or reject, is within +/- 1 pH unit of the feed water before returning the system to service (for NSF compliance).

packaging information

Kleen MCT105 is available in a wide variety of containers and delivery methods.

safety precautions

A Material Safety Data Sheet containing detailed information about this product is available on request.



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www.lenntech.com Fax. +31-152-616-289



SAFETY DATA SHEET

KLEEN MCT105

1. Identification

Product identifier	KLEEN MCT105
Other means of identification	None.
Version #	1.2
Prepared by	This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).
Revision date	May-27-2018
Supersedes date	Dec-18-2017
Recommended use	Membrane cleaner
Recommended restrictions	None known.

Company/undertaking identification

SUEZ Water Technologies & Solutions Canada
3239 Dundas Street West
Oakville, Ontario, L6M 4B2
T 905-465-3030

Emergency telephone

(800) 877-1940

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

Label elements



Signal word Danger

Hazard statement Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation.

Precautionary statement

Prevention Do not breathe mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear eye protection/face protection.

Response Wash contaminated clothing before reuse. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

Storage Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards None known.

Environmental precautions Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Acidic. Do not mix with alkaline material.

Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Do not freeze. If frozen, thaw completely and mix thoroughly prior to use. Keep away from strong bases.

8. Exposure controls/personal protection

Occupational exposure limits No exposure limits noted for ingredient(s).

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Splash proof chemical goggles. Face shield.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.

Other

Wear appropriate chemical resistant clothing.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance Liquid

Color Colorless to amber

Odor Slight acetic

Odor threshold Not available.

pH (concentrated product) 3.4

pH in aqueous solution 3.3 (5% SOL.)

Melting point/freezing point -5 °F (-21 °C)

Initial boiling point and boiling range 210 °F (99 °C)

Flash point > 212 °F (> 100 °C) P-M(CC)

Evaporation rate < 1 (Ether = 1)

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure 18 mm Hg

Vapor pressure temp. 70 °F (21 °C)

Vapor density < 1 (Air = 1)

Components	Species	Test Results
Hydroxyacetic acid (CAS 79-14-1)		
Acute		
<i>Inhalation</i>		
LC50	Rat	3.6 mg/L, 4 Hour
<i>Oral</i>		
LD50	Rat	2040 mg/kg
N-hydroxyethylenediamine triacetic acid trisodium salt (CAS 139-89-9)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 10.054 mg/l, 4 Hour
<i>Oral</i>		
LD50	Rat	1780 mg/kg
Sodium glycollate (CAS 2836-32-0)		
Acute		
<i>Oral</i>		
LD50	Rat	7110 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin burns.
Serious eye damage/eye irritation	Causes serious eye damage.
Respiratory or skin sensitization	
Respiratory sensitization	This product is not expected to cause respiratory sensitization.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	Not classified.
Carcinogenicity	Not classified.
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Based on available data, the classification criteria are not met. Aspiration of this product may cause the same corrosiveness/irritation impacts as if it were ingested.
Chronic effects	Prolonged exposure may cause chronic effects. Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

Product	Species	Test Results
KLEEN MCT105 (CAS Mixture)		
	0% Mortality	Fathead Minnow
		2000 mg/L, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)
Aquatic		
Crustacea	LC50	Daphnia magna
		1890 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
	NOEL	Daphnia magna
		1060 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Hydroxyacetic acid	-1.11
Sodium glycollate	-5.19

Bioconcentration factor (BCF)

Sodium glycollate	3
-------------------	---

Mobility in soil No data available.

Other adverse effects Not available.

Material name: KLEEN MCT105

Version number: 1.2

Packing group II
Environmental hazards No.
ERG Code 153
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

DOT



IATA; IMDG; TDG



15. Regulatory information

Canadian regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date Nov-07-2016
Revision date May-27-2018
Version # 1.2

Hypersperse™ MDC700

Antiscalant/Antifoulant

- Classified for use in producing potable water. (Classified to ANSI/NSF Standard 60)
- Effectively controls scales including calcium carbonate up to LSI +2.5, calcium sulfate, barium sulfate, and strontium sulfate
- Compatible with all of the leading RO membranes
- Maintains cleaner membrane surfaces by dispersing particulate foulants
- Includes uniquely effective proprietary GE Infrastructure Water & Process Technologies polymer
- Effective over a wide pH range
- May be fed neat or diluted
- Compatible with feedwaters that contain aluminum and iron oxides

Description and Use

Hypersperse™ MDC700 is a highly effective liquid antiscalant/antifoulant developed to control scale precipitates and reduce particulate fouling within membrane separation systems. The product includes a proprietary GE Infrastructure Water & Process Technologies polymer which makes it uniquely effective in providing longer run times and extended element life, resulting in reduced operating and capital costs. Industrial applications show excellent results in membrane separation processes including reverse osmosis (RO), nanofiltration (NF) and ultrafiltration (UF) applications.

Packaging Information

Hypersperse MDC700 is a liquid material, available in a wide variety of customized containers and

methods. Contact your GE sales representative for details.

Application

For maximum effectiveness, Hypersperse MDC700 should be added prior to the static mixer or cartridge filter housing.

For potable application, the maximum dosage is 10 mg/L. Maximum dilution is 10% with RO permeate or DI water.

Dosing

Typical dosage range is between 3 and 6 mg/L.

Important Note: Over and under-dosing may cause membrane fouling so please contact your local GE representative to define the optimal feedpoint and dosage rate.

Maximum Dilutions

Maximum dilution is temperature related as shown below.

<u>Temperature, °C</u>	<u>Maximum Dilution, %</u>
<30	10
30-35	25
>35	50

Safety Precautions

A Material Safety Data Sheet containing detailed information about this product is available on request.



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Global Headquarters
Trevose, PA
215-355-3300

Americas
Minnetonka, MN
952-933-2277

Europe/Middle East/Africa
Heverlee, Belgium
32-16-40-20-00

Asia/Pacific
Shanghai, China
86-21-5298-4573

Products mentioned are trademarks of the General Electric Company and may be registered in one or more countries.

PFG 325 410



Material Safety Data Sheet

Issue Date: 30-AUG-2013
Supercedes: 21-SEP-2010

HYPERSPERSE MDC700

1 Identification

Identification of substance or preparation
HYPERSPERSE MDC700

Product Application Area
Membrane deposit control agent

Company/Undertaking Identification
GE Water & Process Technologies Canada
3239 Dundas Street West
Oakville, Ontario, L6M 4B2
T 905-465-3030

Emergency Telephone
(800) 877-1940

Prepared by Product Stewardship Group: T 215-355-3300 Prepared on: 30-AUG-2013

2 Hazard(s) identification

EMERGENCY OVERVIEW

May cause slight irritation to the skin. May cause slight irritation to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

Odor: Slight; Appearance: Light Yellow To Amber, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:

May cause slight irritation to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause gastrointestinal irritation.

TARGET ORGANS:

No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

3 Composition / information on ingredients

Information for specific product ingredients as required by the WHMIS Regulations is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Product contains no hazardous ingredients reportable under WHMIS regulation

No component is considered to be a carcinogen by the U.S. National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), the American Conference of Governmental Industrial Hygienists (ACGIH), or under WHMIS.

4 First-aid measures

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get medical attention if irritation persists after flushing.

INHALATION:

If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 2-8 fluid ounces (60-240 mL) of milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 Fire-fighting measures

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

oxides of carbon, nitrogen, phosphorus and sulfur

FLASH POINT:

> 213F > 101C P-M(CC)

6 Accidental release measures

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

The waste characteristics of the absorbed material, or any contaminated soil, should be determined in accordance with provincial regulations. Water contaminated with this product may be sent to a sanitary sewer treatment facility, in accordance with any local agreement or discharged under provincial regulations. Incinerate or land dispose in an approved landfill.

7 Handling and storage

HANDLING:

Normal chemical handling.

STORAGE:

Keep containers closed when not in use. Do not freeze. If frozen, thaw and mix completely prior to use.

8 Exposure controls / personal protection

EXPOSURE LIMITS

Consult local authorities for acceptable provincial values.

Product contains no hazardous ingredients reportable under WHMIS regulation

ENGINEERING CONTROLS:

adequate ventilation

RESPIRATORY PROTECTION:

If air-purifying respirator use is appropriate, use any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100.

SKIN PROTECTION:

rubber, butyl, viton or neoprene gloves -- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 Physical and chemical properties

Spec. Grav. (70F,21C)	1.130	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	23	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-5		
Viscosity(cps 70F,21C)	22	% Solubility (water)	100.0

Odor	Slight
Appearance	Light Yellow To Amber
Physical State	Liquid
Flash Point	P-M(CC) > 213F > 101C
pH As Is (approx.)	4.7
Evaporation Rate (Ether=1)	< 1.00
Percent VOC:	0.0

NA = not applicable ND = not determined

10 Stability and reactivity

CHEMICAL STABILITY:

Stable under normal storage conditions.

POSSIBILITY OF HAZARDOUS REACTIONS:

Contact with water reactive compounds may cause fire or explosion.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

oxides of carbon, nitrogen, phosphorus and sulfur

11 Toxicological information

Oral LD50 RAT:	>5000 mg/kg
NOTE - Calculated according to GHS additivity formula	
Dermal LD50 RABBIT:	>5000 mg/kg
NOTE - Calculated according to GHS additivity formula	
Inhalation LC50 RAT:	>20 mg/L/4hr
NOTE - Calculated according to GHS additivity formula	

12 Ecological information

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Screen
 0% Mortality= 2500; 50% Mortality= 5000 mg/L
 Fathead Minnow 96 Hour Static Bioassay with 48-Hour Renewal
 0% Mortality= 5000 mg/L
 Menidia beryllina (Silversides) 96 Hour Static Acute Bioassay
 (pH adjusted)
 LC50= 23100; No Effect Level= 6250 mg/L
 Mysid Shrimp 48 Hour Static Acute Bioassay (pH adjusted)
 LC50= 13800; No Effect Level= 6250 mg/L

BIODEGRADATION

BOD-28 (mg/g): 12
 BOD-5 (mg/g): 9
 COD (mg/g): 190
 TOC (mg/g): 70

13 Disposal considerations

Incinerate or bury in approved landfill. Please be advised that there may be additional local or provincial requirements relating to the disposal of waste. Consult provincial and local regulations regarding the proper disposal of this material.

14 Transport information

Transportation of Dangerous Goods:

Not Regulated

DOT EMERGENCY RESPONSE GUIDE #: Not applicable

15 Regulatory information

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

CEPA:

All components of this product comply with substance notification requirements under CEPA.

WHMIS CLASSIFICATION:

NOT REGULATED

16 Other information

HMIS VII

CODE TRANSLATION

Health	1	Slight Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles, Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
	-----	-----	-----
MSDS status:	24-JAN-2001		** NEW **
	18-MAY-2001	12	24-JAN-2001
	02-AUG-2001	12	18-MAY-2001
	16-NOV-2001	12	02-AUG-2001
	25-MAR-2002	15	16-NOV-2001
	28-MAR-2002	12	25-MAR-2002
	16-APR-2002	15	28-MAR-2002
	03-JUL-2002	12	16-APR-2002
	12-FEB-2003	16	03-JUL-2002
	17-JAN-2006	16	12-FEB-2003
	12-JAN-2007	14	17-JAN-2006
	19-JAN-2010	4, 5, 8, 10	12-JAN-2007

12-FEB-2010 14
21-SEP-2010 10
30-AUG-2013 16

19-JAN-2010
12-FEB-2010
21-SEP-2010



Material Safety Data Sheet Calcium chloride, ACS

Section 1 - Chemical Product and Company Identification

MSDS Name:
Calcium chloride, ACS

Catalog Numbers:
LC12725

Synonyms:
Calcium dichloride dihydrate.

Company Identification:
LabChem, Inc.
200 William Pitt Way
Pittsburgh, PA 15238

Company Phone Number:
(412) 826-5230

Emergency Phone Number:
(800) 424-9300

CHEMTREC Phone Number:
(800) 424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	Percent
10035-04-08	Calcium chloride dihydrate	100%

Section 3 - Hazards Identification

Emergency Overview

Appearance: *white solid*

Warning! May be harmful if swallowed. May cause severe respiratory and digestive tract irritation with possible burns. May cause severe eye and skin irritation with possible burns. May cause cardiac disturbances. Hygroscopic (absorbs moisture from air).

Target Organs: Eyes.

Potential Health Effects

Eye:

May cause severe eye irritation and possible eye burns.

Skin:

Causes skin irritation and possible burns, especially if the skin is wet or moist.

Ingestion:

May cause severe gastrointestinal irritation with nausea, vomiting and possible burns. May cause cardiac disturbances. May be harmful if swallowed. In very severe cases, seizures, rapid respiration, slow heartbeat, or death may result.

Inhalation:

May cause severe irritation of the upper respiratory tract with pain, burns, and inflammation.



Material Safety Data Sheet Calcium chloride, ACS

Chronic:

Effects may be delayed.

Section 4 - First Aid Measures

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids until no evidence of chemical remains. Get medical aid at once.

Skin:

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid.

Ingestion:

Do not induce vomiting. If victim is conscious, give 2-4 glasses of water or milk. Get medical aid at once.

Inhalation:

Give artificial respiration if necessary. Move victim to fresh air. Keep victim warm and at rest. Get medical aid at once. Do not use mouth-to-mouth resuscitation.

Notes to Physician:

Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

Autoignition Temperature:

No information found.

Flash Point:

No information found.

NFPA Rating:

Health-2; flammability-0; reactivity-0

Explosion Limits:

Lower: n/a Upper: n/a

Section 6 - Accidental Release Measures

General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately. Avoid creating airborne particles. Provide ventilation.



Material Safety Data Sheet Calcium chloride, ACS

Section 7 - Handling and Storage

Handling:

Wash thoroughly after handling. Use with adequate ventilation. Do not get on skin or in eyes. Do not ingest or inhale. Always use cool water when dissolving calcium chloride. Heat evolved is significant. Avoid breathing dust, vapor, mist, or gas.

Storage:

Store capped at room temperature. Protect from heat and incompatibles.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits:

Chemical Name:	ACGIH	NIOSH	OSHA
Calcium chloride	none listed	none listed	none listed

OSHA Vacated PELs:

Calcium chloride: No OSHA Vacated PELs are listed.

Personal Protective Equipment

Eyes:

Do not wear contact lenses when working with chemicals. An eye wash fountain should be available in the immediate work area. Wear appropriate protective eyeglasses or chemical safety goggles as described in 29 CFR 1910.133.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29 CFR 1910.134. Use a NIOSH/MSHA approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State:	Solid
Color:	White
Odor:	Odorless
pH:	4.5-8.5 (5% solution at 25°C)
Vapor Pressure:	Not available
Vapor Density:	Not available



Material Safety Data Sheet Calcium chloride, ACS

Evaporation Rate:	Not available
Viscosity:	Not available
Boiling Point:	Not available
Freezing/Melting Point:	175°C
Decomposition Temperature:	Not available
Solubility in water:	Soluble
Specific Gravity/Density:	Not available
Molecular Formula:	CaCl ₂ ·2H ₂ O
Molecular Weight:	147.01

Section 10 - Stability and Reactivity

Chemical Stability:

Stable under normal storage and handling conditions.

Conditions to Avoid:

Dust generation, excess heat, exposure to water or moist air

Incompatibilities with Other Materials:

Bromine trifluoride, Furan-2-peroxycarboxylic acid. Solutions attack some metals.

Hazardous Decomposition Products:

Calcium oxide, hydrogen chloride.

Hazardous Polymerization:

Has not been reported.

Section 11 - Toxicological Information

RTECS:

CAS# 10035-04-8: EV9810000

LD50/LC50:

CAS# 10035-04-8:

Oral, mouse: LD50 = 1940 mg/Kg;

Oral, rabbit: LD50 = 1384 mg/Kg;

Oral, rat: LD50 = 1 g/Kg.

Carcinogenicity:

CAS# 10035-04-8: Not listed by ACGIH, IARC, NTP, or CA Proposition 65.

Epidemiology:

No information available.

Teratogenicity:

No information available.

Reproductive:

No information available.

Mutagenicity:

Mutagenic effects have occurred in experimental animals.

Neurotoxicity:

No information available.



Material Safety Data Sheet Calcium chloride, ACS

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Dispose of in accordance with Federal, State, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: Not regulated.

Hazard Class:

UN Number:

Packing Group:

Section 15 - Regulatory Information

US Federal

TSCA:

CAS# 10035-04-8 is not listed on the TSCA inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40 CFR 720.3(u)(2)).

CAS# 10043-52-4 (anhydrous) is listed on the TSCA inventory. Does not have a Significant New Use Rule.

SARA Reportable Quantities (RQ):

CAS# 10035-04-8 does not have a RQ.

CERCLA/SARA Section 313:

Not reportable under Section 313.

OSHA - Highly Hazardous:

Not considered highly hazardous by OSHA.

US State

State Right to Know:

CAS# 10035-04-8 is not listed on the following state right to know lists: California, Florida, New Jersey, Pennsylvania, Minnesota, and Massachusetts.

California Regulations:

Not listed.

European/International Regulations

Canadian DSL/NDSL:

CAS# 10035-04-8 is listed on Canada's DSL List.

Canada Ingredient Disclosure List:

CAS# 10035-04-8 is not listed on the Ingredient Disclosure List.



Material Safety Data Sheet
Calcium chloride, ACS

Section 16 - Other Information

MSDS Creation Date: July 24, 2006

Revision Date: None

Information in this MSDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc. assumes no liability resulting from the use of this MSDS. The user must determine suitability of this information for his application.

SAFETY DATA SHEET

Propane

Section 1. Identification

GHS product identifier	: Propane
Chemical name	: propane
Other means of identification	: Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.
Product type	: Liquefied gas
Product use	: Synthetic/Analytical chemistry.
Synonym	: Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.
SDS #	: 001045
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	: 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Liquefied gas

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Extremely flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May cause frostbite.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General

: Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention

: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response

: Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage

: Protect from sunlight. Store in a well-ventilated place.

Section 2. Hazards identification

Disposal : Not applicable.
Hazards not otherwise classified : Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients

Substance/mixture : Substance
Chemical name : propane
Other means of identification : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.
Product code : 001045

CAS number/other identifiers

CAS number : 74-98-6

Ingredient name	%	CAS number
Propane	100	74-98-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Liquid can cause burns similar to frostbite.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Section 4. First aid measures

- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:, frostbite
Inhalation : No specific data.
Skin contact : Adverse symptoms may include the following:, frostbite
Ingestion : Adverse symptoms may include the following:, frostbite

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments : No specific treatment.
Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media : None known.

- Specific hazards arising from the chemical** : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Section 6. Accidental release measures

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Propane	<p>NIOSH REL (United States, 10/2016). TWA: 1800 mg/m³ 10 hours. TWA: 1000 ppm 10 hours.</p> <p>OSHA PEL (United States, 6/2016). TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.</p> <p>ACGIH TLV (United States, 3/2017). Oxygen Depletion [Asphyxiant].</p>

Section 8. Exposure controls/personal protection

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Thermal hazards** : If there is a risk of contact with the liquid, all protective equipment worn should be suitable for use with extremely low temperature materials.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Gas. [Compressed gas.]
- Color** : Colorless.
- Odor** : Odorless.BUT MAY HAVE SKUNK ODOR ADDED.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : -187.6°C (-305.7°F)
- Boiling point** : -161.48°C (-258.7°F)

Section 9. Physical and chemical properties

Critical temperature	: 96.55°C (205.8°F)
Flash point	: Closed cup: -104°C (-155.2°F) Open cup: -104°C (-155.2°F)
Evaporation rate	: Not available.
Flammability (solid, gas)	: Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.
Lower and upper explosive (flammable) limits	: Lower: 1.8% Upper: 8.4%
Vapor pressure	: 109 (psig)
Vapor density	: 1.6 (Air = 1)
Specific Volume (ft³/lb)	: 8.6206
Gas Density (lb/ft³)	: 0.116 (25°C / 77 to °F)
Relative density	: Not applicable.
Solubility	: Not available.
Solubility in water	: 0.02 g/l
Partition coefficient: n-octanol/water	: 1.09
Auto-ignition temperature	: 287°C (548.6°F)
Decomposition temperature	: Not available.
Viscosity	: Not applicable.
Flow time (ISO 2431)	: Not available.
Molecular weight	: 44.11 g/mole
<u>Aerosol product</u>	
Heat of combustion	: -46012932 J/kg

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas.
Incompatible materials	: Oxidizers
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Liquid can cause burns similar to frostbite.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
- Ingestion** : Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:, frostbite
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:, frostbite
- Ingestion** : Adverse symptoms may include the following:, frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Section 11. Toxicological information

Potential chronic health effects

Not available.

General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Propane	1.09	-	low

Mobility in soil






Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1978	UN1978	UN1978	UN1978	UN1978
UN proper shipping name	PROPANE	PROPANE	PROPANE	PROPANE	PROPANE
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Additional information

DOT Classification

: **Limited quantity**
Yes.

Packaging instruction

Passenger aircraft

Quantity limitation: Forbidden.

Cargo aircraft

Quantity limitation: 150 kg

Special provisions

19, T50

For domestic transportation only, UN1075 may be substituted for the UN number shown as long as the substitution is consistent on package markings, shipping papers, and emergency response information. See 49 CFR 172.102 Special Provision 19.

Containers of NON-ODORIZED liquefied petroleum gas must be marked either NON-ODORIZED or NOT ODORIZED as of September 30, 2006. [49 CFR 172.301(f), 326(d), 330(c) and 338(e)]

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).

Explosive Limit and Limited Quantity Index 0.125

ERAP Index 3000

Passenger Carrying Ship Index 65

Passenger Carrying Road or Rail Index Forbidden

Special provisions 29, 42

IATA

: **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: 150 kg.

Special precautions for user

: **Transport within user’s premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code

: Not available.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
Clean Air Act (CAA) 112 regulated flammable substances: propane

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : **Japan inventory (ENCS):** This material is listed or exempted.
Japan inventory (ISHL): This material is listed or exempted.

Malaysia : This material is listed or exempted.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Section 15. Regulatory information

Taiwan	: This material is listed or exempted.
Thailand	: Not determined.
Turkey	: This material is listed or exempted.
United States	: This material is listed or exempted.
Viet Nam	: Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	/	2
Flammability		4
Physical hazards		3

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 1	Expert judgment
GASES UNDER PRESSURE - Liquefied gas	Expert judgment

History

Date of printing	: 5/6/2018
Date of issue/Date of revision	: 5/6/2018
Date of previous issue	: 6/28/2017
Version	: 1

Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973
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Section 16. Other information

as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References

: Not available.

Other special considerations

: The information below is given to call attention to the issue of "Naturally occurring radioactive materials". Although Radon-222 levels in the product represented by this MSDS do not present any direct Radon exposure hazard, customers should be aware of the potential for Radon daughter build up within their processing systems, whatever the source of their product streams. Radon-222 is a naturally occurring radioactive gas which can be a contaminant in natural gas. During subsequent processing, Radon tends to be concentrated in Liquefied Petroleum Gas streams and in product streams having a similar boiling point range. Industry experience has shown that this product may contain small amounts of Radon-222 and its radioactive decay products, called Radon "daughters". The actual concentration of Radon-222 and radioactive daughters in the delivered product is dependent on the geographical source of the natural gas and storage time prior to delivery. Process equipment (i.e. lines, filters, pumps and reaction units) may accumulate significant levels of radioactive daughters and show a gamma radiation reading during operation. A potential external radiation hazard exists at or near any pipe valve or vessel containing a Radon enriched stream, or containing internal deposits of radioactive material due to the transmission of gamma radiation through its wall. Field studies reported in the literature have not shown any conditions that subject workers to cumulative exposures in excess of general population limits. Equipment emitting gamma radiation should be presumed to be internally contaminated with alpha emitting decay products which may be a hazard if inhaled or ingested. Protective equipment such as coveralls, gloves, and respirator (NIOSH/MHSA approved for high efficiency particulates and radionuclides, or supplied air) should be worn by personnel entering a vessel or working on contaminated process equipment to prevent skin contamination, ingestion, or inhalation of any residues containing alpha radiation. Airborne contamination may be minimized by handling scale and/or contaminated materials in a wet state.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Substance name	: Potassium Hydroxide
CAS-No.	: 1310-58-3
Product code	: LC19190
Formula	: KOH
Synonyms	: caustic potash / caustic potash dry / caustic potash, dry solid, flake, bead or granular / caustic potash, solid / caustic potash, solid / hydrate of potash / hydrate of potassium / hydroxide of potash / hydroxide of potassium / lye (=potassium hydroxide) / potash / potash hydrate / potash lye / potassium hydrate / potassium hydroxide (K(OH)) / potassium hydroxide dry / potassium hydroxide pellets / potassium hydroxide, dry solid, flake, bead or granular / potassium hydroxide, electrolytical, solid / potassium hydroxide, solid / Potassium hydroxide, solid / potassium lye

1.2. Recommended use and restrictions on use

Use of the substance/mixture	: For laboratory and manufacturing use only.
Recommended use	: Laboratory chemicals
Restrictions on use	: Not for food, drug or household use

1.3. Supplier

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute toxicity (oral) Category 4	H302	Harmful if swallowed
Skin corrosion/irritation Category 1A	H314	Causes severe skin burns and eye damage
Hazardous to the aquatic environment - Acute Hazard Category 3	H402	Harmful to aquatic life

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS05

GHS07

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H402 - Harmful to aquatic life

Precautionary statements (GHS-US) :

P260 - Do not breathe dust.
P264 - Wash exposed skin thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a poison center or doctor/physician.
P363 - Wash contaminated clothing before reuse.
P405 - Store locked up.
P501 - Dispose of contents/container to comply with local, state and federal regulations
If inhaled: Remove person to fresh air and keep comfortable for breathing

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
Potassium Hydroxide (Main constituent)	(CAS-No.) 1310-58-3	100	Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 Aquatic Acute 3, H402

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air. Doctor: administration of corticoid spray. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Cover eyes aseptically. Do not apply neutralizing agents. Take victim to an ophthalmologist.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not give activated charcoal. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital. Do not give chemical antidote.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : AFTER INHALATION OF DUST: Dry/sore throat. Corrosion of the upper respiratory tract. Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible oedema of the upper respiratory tract. Possible inflammation of the respiratory tract. Possible laryngeal spasm/oedema. Risk of pneumonia.

Symptoms/effects after skin contact : Caustic burns/corrosion of the skin. Slow-healing wounds.

Symptoms/effects after eye contact : Corrosion of the eye tissue. Permanent eye damage. Blindness.

Symptoms/effects after ingestion : Abdominal pain. Difficulty in swallowing. Possible esophageal perforation. Irritation of the oral mucous membranes. Burns to the gastric/intestinal mucosa. Blood in vomit. AFTER ABSORPTION OF LARGE QUANTITIES: Change in the blood composition. Disturbances of heart rate. FOLLOWING SYMPTOMS MAY APPEAR LATER: Bleeding of the gastrointestinal tract. Low arterial pressure. Blood in stool. Shock.

Chronic symptoms : No effects known.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

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according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media : EXTINGUISHING MEDIA FOR SURROUNDING FIRES: Adapt extinguishing media to the environment.
- Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Specific hazards arising from the chemical

- Fire hazard : DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard".
- Explosion hazard : INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".
- Reactivity : Violent exothermic reaction with water (moisture). Reacts on exposure to water (moisture) with combustible materials: risk of spontaneous ignition. Reacts on exposure to water (moisture) with (some) metals: release of highly flammable gases/vapours (hydrogen). Absorbs the atmospheric CO₂. Violent to explosive reaction with many compounds e.g.: with organic material, with (some) halogens and with (some) acids: heat release resulting in increased fire or explosion risk.

5.3. Special protective equipment and precautions for fire-fighters

- Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
- Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Face-shield. Corrosion-proof suit. Dust cloud production: compressed air/oxygen apparatus. See "Material-Handling" to select protective clothing.
- Emergency procedures : Mark the danger area. Avoid ingress of water in the containers. Prevent dust cloud formation. Wash contaminated clothes. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation.
- Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area. Stop release.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Take account of toxic/corrosive precipitation water. Hazardous reaction: measure explosive gas-air mixture. Reaction: dilute combustible gas/vapour with water curtain.
- Methods for cleaning up : Collect the spill only if it is in a dry state. Wetted substance: cover with dry sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Small quantities of liquid spill: neutralize with dilute acid solution. Wash away neutralized product with plentiful water. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Avoid contact of substance with water. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

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Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage temperature : 20 °C
Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.
Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: combustible materials. oxidizing agents. strong acids. highly flammable materials. metals. organic materials. water/moisture.
Storage area : Store in a dry area. Keep container in a well-ventilated place. Keep locked up. Provide for a tub to collect spills. Unauthorized persons are not admitted. Meet the legal requirements.
Special rules on packaging : SPECIAL REQUIREMENTS: hermetical. watertight. corrosion-proof. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials : SUITABLE MATERIAL: steel. stainless steel. carbon steel. iron. nickel. cardboard. synthetic material. glass. stoneware/porcelain. MATERIAL TO AVOID: lead. aluminium. copper. tin. zinc. bronze. polyethylene.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Potassium Hydroxide (1310-58-3)		
ACGIH	ACGIH Ceiling (mg/m ³)	2 mg/m ³ (Potassium hydroxide; USA; Momentary value; TLV - Adopted Value)
NIOSH	NIOSH REL (ceiling) (ppm)	2 ppm

8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Corrosionproof clothing. Protective goggles. Dust formation: dust mask. Gloves.



Materials for protective clothing:

GIVE EXCELLENT RESISTANCE: butyl rubber. natural rubber. neoprene. nitrile rubber. PVC. viton. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: leather. natural fibres. PVA

Hand protection:

Gloves

Eye protection:

Face shield

Skin and body protection:

Corrosion-proof clothing. In case of dust production: head/neck protection

Respiratory protection:

Dust production: dust mask with filter type P3.
Self-contained breathing apparatus if conc. in air > 1 vol %

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid
Appearance : Solid in various shapes. Powder.

Potassium Hydroxide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Color	: White to light yellow
Odor	: Odorless
Odor threshold	: No data available
pH	: 13.5 (0.60 %)
pH solution	: 0.6 %
Melting point	: 360 °C
Freezing point	: No data available
Boiling point	: No data available
Flash point	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: < 0.1 hPa (20 °C)
Relative vapor density at 20 °C	: No data available
Relative density	: 2 (20 °C)
Specific gravity / density	: 2044 kg/m ³ (20 °C)
Molecular mass	: 56.11 g/mol
Solubility	: Exothermically soluble in water. Soluble in ethanol. Soluble in glycerol. Water: 112 g/100ml
Log Pow	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: Not applicable.
Oxidizing properties	: None.

9.2. Other information

Minimum ignition energy	: Not applicable
SADT	: Not applicable
VOC content	: 0 %
Other properties	: Translucent. Hygroscopic. Substance has basic reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

Violent exothermic reaction with water (moisture). Reacts on exposure to water (moisture) with combustible materials: risk of spontaneous ignition. Reacts on exposure to water (moisture) with (some) metals: release of highly flammable gases/vapours (hydrogen). Absorbs the atmospheric CO₂. Violent to explosive reaction with many compounds e.g.: with organic material, with (some) halogens and with (some) acids: heat release resulting in increased fire or explosion risk.

10.2. Chemical stability

Hygroscopic. Absorbs atmospheric CO₂.

10.3. Possibility of hazardous reactions

Reacts violently with water. Reacts violently with acids.

10.4. Conditions to avoid

Moisture. High temperature. Incompatible materials.

10.5. Incompatible materials

metals. Halogens. Acid anhydrides. Nitrates. Organic compounds. Water.

10.6. Hazardous decomposition products

Potassium oxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure	: Skin and eye contact
---------------------------	------------------------

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Acute toxicity : Oral: Harmful if swallowed.

Potassium Hydroxide (1310-58-3)	
LD50 oral rat	333 mg/kg (Rat; Equivalent or similar to OECD 425; Experimental value)
ATE US (oral)	333 mg/kg body weight
Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: 13.5 (0.60 %)
Serious eye damage/irritation	: Not classified pH: 13.5 (0.60 %)
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity – single exposure	: Not classified
Specific target organ toxicity – repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: AFTER INHALATION OF DUST: Dry/sore throat. Corrosion of the upper respiratory tract. Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible oedema of the upper respiratory tract. Possible inflammation of the respiratory tract. Possible laryngeal spasm/oedema. Risk of pneumonia.
Symptoms/effects after skin contact	: Caustic burns/corrosion of the skin. Slow-healing wounds.
Symptoms/effects after eye contact	: Corrosion of the eye tissue. Permanent eye damage. Blindness.
Symptoms/effects after ingestion	: Abdominal pain. Difficulty in swallowing. Possible esophageal perforation. Irritation of the oral mucous membranes. Burns to the gastric/intestinal mucosa. Blood in vomit. AFTER ABSORPTION OF LARGE QUANTITIES: Change in the blood composition. Disturbances of heart rate. FOLLOWING SYMPTOMS MAY APPEAR LATER: Bleeding of the gastrointestinal tract. Low arterial pressure. Blood in stool. Shock.
Chronic symptoms	: No effects known.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water : Ground water pollutant. Harmful to fishes. Highly toxic to plankton. pH shift.

Potassium Hydroxide (1310-58-3)	
LC50 fish 2	80 mg/l (LC50; 96 h; Gambusia affinis; Static system; Fresh water)

12.2. Persistence and degradability

Potassium Hydroxide (1310-58-3)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

12.3. Bioaccumulative potential

Potassium Hydroxide (1310-58-3)	
Bioaccumulative potential	Bioaccumulation: not applicable.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

Potassium Hydroxide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 13: Disposal considerations

13.1. Disposal methods

- Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Should not be landfilled with household waste. Recycle/reuse. Immobilize the toxic or harmful components. Precipitate/make insoluble. Remove to an authorized dump (Class I). Treat using the best available techniques before discharge into drains or the aquatic environment.
- Additional information : LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

- Transport document description : UN1813 Potassium hydroxide, solid, 8, II
- UN-No.(DOT) : UN1813
- Proper Shipping Name (DOT) : Potassium hydroxide, solid
- Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136
- Packing group (DOT) : II - Medium Danger
- Hazard labels (DOT) : 8 - Corrosive



- DOT Packaging Non Bulk (49 CFR 173.xxx) : 212
- DOT Packaging Bulk (49 CFR 173.xxx) : 240
- DOT Special Provisions (49 CFR 172.102) : IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.
IP4 - Flexible, fiberboard or wooden IBCs must be sift-proof and water-resistant or be fitted with a sift-proof and water-resistant liner.
T3 - 2.65 178.274(d)(2) Normal..... 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.
- DOT Packaging Exceptions (49 CFR 173.xxx) : 154
- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 15 kg
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 50 kg
- DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
- DOT Vessel Stowage Other : 52 - Stow "separated from" acids
- Other information : No supplementary information available.

Potassium Hydroxide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 15: Regulatory information

15.1. US Federal regulations

Potassium Hydroxide (1310-58-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporting requirements of the United States SARA Section 313

RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date : 02/06/2018

Full text of H-phrases: see section 16:

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H402	Harmful to aquatic life

NFPA health hazard

: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard

: 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

: 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.

NFPA specific hazard

: W - Materials that react violently or explosively with water.

Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

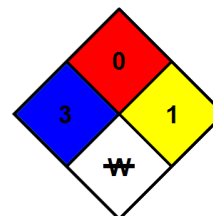
Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection

: F

F - Safety glasses, Gloves, Synthetic apron, Dust respirator



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E-mail:jianshengm@163.com

Alkyl Polyglycosiodes (APG-0810)

Technical data:

Item	Index
Appearance (20°C)	White to pale yellow gel cream
Colour(Hazen) \leq	50
pH (15% aq solution)	11.5~12.5
viscosity (20°C, mPa.s) \geq	200
solid content % \geq	50
sulfate ash % \leq	4.0
Fatty alcohol % \leq	1.0

Packaging: 200kg(n.w.) per plastic drum.

Storage: Store this product in dry and cool place, kept away from sunshine and rain.



E-mail:jianshengm@163.com

Alkyl Polyglycosiodes (APG-0814)

Technical data:

Item	Index
Appearance (20°C)	White to pale yellow gel cream
Odor	characteristic
Colour(Hazen) \leq	50
pH(15% aq solution)	11.5~12.5
viscosity (20°C, mPa.s) \geq	1000
solid content % \geq	50
sulfate ash% \leq	4.0
Fatty alcohol% \leq	1.0

Packaging: 200kg(n.w.) per plastic drum.

Storage: Store this product in dry and cool place, kept away from sunshine and rain.



E-mail:jianshengm@163.com

Alkyl Polyglycosiodes (APG-1214)

Technical data:

Item	Index
Appearance (20℃)	White to pale yellow gel cream
Colour(Hazen) ≤	50
pH(15% aq solution)	11.5~12.5
viscosity (40℃, mPa.s) ≥	2000
solid content% ≥	50
sulfate ash% ≤	3.0
Fatty alcohol% ≤	1.0

Packaging: 220kg(n.w.) per plastic drum.

Storage: Store this product in dry and cool place, kept away from sunshine and rain.

Martin Product Sales, LLC
P.O. Box 191
Kilgore, Texas 75663
1-800-256-6644

Emergency Assistance
Chemtrec: (800)424-9300

Section 1: Product Identification

Synonyms: Sulphuric Acid, Hydrogen Sulphate, Oil of Vitriol, Battery Acid
Chemical Name: Sulfuric Acid
Chemical Family: Inorganic Acid
Chemical Formula: H₂SO₄
CAS Reg. No.: 7664-93-9

Martin can not guarantee the technical analysis and exact chemical composition as it may vary depending on the chemical components of the raw material and are not reflected in this document. Consult analysis sheets for exact chemical composition.

Section 2: Hazard Identification

PHYSICAL STATE AND APPEARANCE: Odorless, clear to amber, heavy, oily liquid. A pungent odor may exist if certain impurities are present in the acid.

EMERGENCY OVERVIEW: Danger! Extremely corrosive. Causes severe burns and / or eye damage. Mist: Causes respiratory irritation. Harmful if inhaled. Harmful or fatal if swallowed. Reacts violently with water. Concentrated Sulfuric Acid will react with many organic materials and may cause fire due to the heat of the reaction. Not flammable, but reacts with most metals to form explosive/flammable hydrogen gas.

This product contains ingredients that are considered to be hazardous as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200, and is listed in the Toxic Substances Control Act (TSCA).

Routes of entry: Skin contact. Eye contact. Ingestion. Inhalation.

Potential acute health effects

EYE CONTACT: Immediate pain, severe burns and corneal damage, which may result in permanent blindness.

SKIN CONTACT: Causes burns, and brownish or yellow stains. Concentrated solutions may cause second or third degree burns with severe necrosis. Prolonged and repeated exposure to dilute solutions may cause irritation, redness, pain and drying and cracking of the skin.

INHALATION: Causes respiratory irritation and at high concentrations may cause severe injury, burns, or death. Effects of exposure may be delayed.

INGESTION: Causes severe irritation or burns of the mouth, throat, and esophagus.

EXISTING MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE: Skin irritation may be aggravated in individuals with existing skin lesions. Breathing of vapors or sprays (mists) may aggravate acute or chronic asthma and chronic pulmonary disease such as emphysema and bronchitis.

See Section 11 for Toxicological Data

Section 3: Composition / Information on Ingredients

Name	CAS #	% by weight
Sulfuric Acid	7664-93-9	70 – 100%
Water	7732-18-5	0-30%

Section 4: First Aid Measures

Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain.

**SPEED IS ESSENTIAL. OBTAIN IMMEDIATE MEDICAL ATTENTION.
Have emergency eyewash station / safety shower available in work area.**

SKIN CONTACT: Immediately flush skin with running water for a **minimum** of 20 minutes. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention immediately. Do not transport victim unless the recommended flushing period is completed or flushing can be continued during transport.

Discard heavily contaminated clothing and shoes in a manner that limits further exposure.

EYE CONTACT: Immediately flush eyes with running water for a **minimum** of 20 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

INHALATION: Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Do not use mouth-to-mouth method if victim ingested or inhaled the substance: induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Give Cardiopulmonary Resuscitation (CPR) if there is no pulse AND no breathing. Obtain medical attention IMMEDIATELY.

INGESTION: DO NOT INDUCE VOMITING. If victim is alert and not convulsing, rinse mouth and give ½ to 1 glass of water to dilute material. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY contact local poison control center. Vomiting may need to be induced but should be directed by a physician or a poison control centre. IMMEDIATELY transport victim to an emergency facility.

While the patient is being transported to a medical facility apply compresses of iced water. If medical treatment must be delayed, immerse the affected area in iced water or apply compresses of iced water to affected areas. Do not freeze tissue.

Continued washing of the affected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of treatment.

NOTE TO PHYSICIANS: This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed. Following exposure the patient should be kept under medical review for at least 48 hours as delayed pneumonitis may occur. DO NOT attempt to neutralize the acid with weak bases since the reaction will produce heat that may extend the corrosive injury

Section 5: Fire Fighting Measures

Flammability of the product:	Non-flammable
Flash points:	Not applicable
Auto-ignition temperature:	Not applicable
Flammable limits:	Not applicable
Products of thermal decomposition:	Oxides of Sulfur

EXPLOSION HAZARDS:

Not flammable but highly reactive. Reacts violently with water with evolution of heat can react with organic materials explosively (See Section 10). Reacts with many metals to liberate hydrogen gas which can form explosive mixtures with air. Hydrogen can accumulate to explosive concentrations. May ignite other combustible materials.

HAZARDOUS REACTIVITY

Instability: Stable, but reacts violently with water and organic materials with evolution of heat.

Decomposition: Releases sulfur dioxide at extremely high temperatures.

Polymerization: Polymerization will not occur.

Materials to Avoid: Vigorous reactions with water; alkaline solutions; metals, metal powder; carbides; chlorates; fuminates; nitrates; picrates; strong oxidizing, reducing, or combustible organic materials. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides.

FIRE-FIGHTING MEDIA AND INSTRUCTIONS:

Wear a NIOSH/MSHA approved self-contained breathing apparatus if vapors or mists are present and full protective clothing. For fighting fires in close proximity to spill or vapors, use acid-resistant personal protective equipment. Evacuate personnel to a safe area. Prevent unauthorized entry to fire area. Dike area to contain runoff and prevent contamination of water sources. Neutralize runoff with lime, soda ash or other suitable neutralizing agents (see Deactivating Chemicals, Section 6). Cool containers that are exposed to flame with streams of water until fire is out.

Section 6: Accidental Release Measures

Small Spill:

Cover with DRY earth, sand or other non-combustible material or absorb with an inert dry material and place in a loosely covered plastic or other appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate, lime, or other suitable neutralizing agent.

Large Spill:

Stop leak if possible without risk. Dike with DRY earth, sand or other non-combustible inert material. Prevent entry into sewers or waterways. Consider neutralizing the residue with sodium carbonate, lime, or other suitable neutralizing agent. Ensure adequate decontamination of tools and equipment following clean up. Comply with Federal, Provincial/State and local regulations on reporting releases. Dispose of waste material at an approved waste treatment/disposal facility, in accordance with applicable regulations. Do not dispose of waste with normal garbage or to sewer systems.

Section 7: Handling and Storage

Good general ventilation should be provided to keep vapor and mist concentrations below the exposure limits. Have available and wear as appropriate: Chemical splash goggles; full-length faceshield/chemical splash goggle combination; acid-proof gauntlet gloves, apron, and boots; acid proof suit and hood; and appropriate NIOSH/MSHA respiratory protection. In case of emergency or where there is a strong possibility of considerable exposure, wear a complete acid suit with hood, boots and gloves. If acid vapor or mist are present and exposure limits may be exceeded, wear appropriate NIOSH/MSHA respiratory protection.

HANDLING: Wear appropriate Personal Protection Equipment. Do not breathe sprays or mists. Do not ingest. Do not get in eyes, on skin or on clothing. Keep ignition sources away from sulfuric acid storage, handling and transportation equipment. Locate safety shower and eyewash station close to chemical handling area. Use **EXTREME** care when diluting with water. **Always add acid to water never the reverse.** **CAUTION:** Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside drums, or any types of steel containers or tanks upon storage. Carbon steel storage tanks must be vented. People working with this chemical should be properly trained regarding its hazards and its safe use.

STORAGE: If stored in non-reactive container, keep container tightly closed. Metal and, specifically carbon steel, storage tanks must be vented due to hydrogen release as noted above.

Section 8: Exposure Control / Personal Protection

Engineering controls

Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits. The most effective measures are the total enclosure of processes and the mechanization of handling procedures to prevent all personal contact with sulfuric acid. Safety showers and eyewash stations should be installed in storage and handling areas.

Personal protection

Eyes: Chemical goggles and face shield.

Skin: Where there is a danger of spilling or splashing, acid resistant aprons or suits should be worn. Trouser legs should be worn outside (not tucked in) rubber boots.

Hands: Chemical-resistant, impervious gloves (i.e. neoprene) should be worn when handling sulfuric acid.

Respiratory: Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. A NIOSH/MSHA approved air-purifying respirator equipped with acid gas/fume, dust, mist cartridges for concentrations up to 10 mg/m³. An air-supplied respirator if concentrations are higher or unknown.

NOTE: Personal protection information shown in Section 8 is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

Component	Exposure limits
Sulfuric Acid:	ACGIH TLV 1 mg/m ³ (TWA) 8 hours
	ACGIH STEL 3 mg/m ³ 15 minutes
	OSHA PEL 1 mg/m ³ (TWA) 8 hours
	NIOSH REL 1 mg/m ³ (TWA) 10 hours

Section 9: Physical and Chemical Properties

Appearance and Odor: Odorless, clear to amber, heavy, oily liquid. A pungent odor may exist if certain impurities are present in the acid.

Physical State: Liquid

Molecular Weight: 98.08

Odor Threshold: Not applicable

Boiling Point: 78%: 193°C (380°F) 93%: 276°C (529°F) 98%: 330°C (626°F)

Melting/Freezing Point: 78%: -11.2°C (+11.6°F) 93%: -29.5°C (-21.1°F) 98%: -1.1°C (30°F)

Vapor Pressure at 40°C (102°F): 78%: 1.2 mmHg 93%: 0.0016 mmHg 98%: 0.002 mmHg

Specific Gravity at 15°C (60°F): 78%: 1.7059 93%: 1.8354 98%: 1.8437

Vapor Density: (Air=1): 3.4

Evaporation Rate: Not applicable

Solubility: Easily soluble in cold water (with liberation of much heat.)

Soluble in ethyl alcohol.

pH: 0.3 (1N solution at 25°C/78°F)

Section 10: Stability and Reactivity

Stability: Stable

Conditions to Avoid: Keep away from heat and sources of ignition. Avoid temperatures, which may have a negative effect on the materials of construction used in equipment.

Materials to Avoid: Contact with organic materials (such as alcohol, acrylonitrile, chlorates, carbides, epichlorohydrin, fulminates, isoprene, nitrates and picrates) may cause fire and explosions. Contact with metals may produce flammable hydrogen gas. When diluting, add acid to water. Do NOT add water to the acid.

Hazardous Decomposition or Combustion Products: Toxic gases and vapors (e.g. sulfur dioxide, sulfuric acid vapors/mists and sulfur trioxide) may be released when sulfuric acid decomposes.

Hazardous Polymerization: Will Not Occur.

Corrosivity: Extremely corrosive in presence of aluminum, copper, and stainless steel. Highly corrosive in presence of stainless steel (304). Non-corrosive in presence of glass.

Section 11: Toxicological Information

Toxicity Data

LD_{50} (oral, rat) = 2140 mg/kg LC_{50} (inhalation, rat) = 510 mg/m³ for 2 hrs

Carcinogenicity Data: The IARC has concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to man, causing cancer of the larynx (the voice box). Although no direct link has been established between exposure to sulfuric acid and cancer in man, exposure to any mist or aerosol during the use of this product should be avoided.

Reproductive Effects: Slightly embryotoxic in rabbits (a minor, rare skeletal variation). The animals were exposed to 5 and 20 mg/m³ for 7 hrs/day throughout pregnancy. Slight maternal toxicity was present at the highest dose in both species.

Mutagenicity Data: Cytogenic analysis (hamster) ovaries 4 mmol/L

Teratogenicity Data: Not teratogenic in mice and rabbits.

Synergistic Materials: None known

Special Remarks on other Toxic Effects on Humans:

Skin: Causes severe skin irritation and burns. Continued contact can cause tissue necrosis.

Eye: Causes severe eye irritation and burns. May cause irreversible eye injury.

Ingestion: Harmful if swallowed. May cause permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the stomach, GI bleeding, edema of the glottis, necrosis and scarring, and sudden circulatory collapse (similar to acute inhalation). It may also cause systemic toxicity with acidosis.

Inhalation: May cause severe irritation of the respiratory tract and mucous membranes with sore throat, coughing, shortness of breath, and delayed lung edema. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. May also affect teeth (changes in teeth and supporting structures - erosion, discoloration).

Chronic Potential Health Effects:

Inhalation: Prolonged or repeated inhalation may affect behavior (muscle contraction or spasticity), urinary system (kidney damage), and cardiovascular system, heart (ischemic heart lesions), and respiratory system/lungs (pulmonary edema, lung damage), teeth (dental discoloration, erosion).

Skin: Prolonged or repeated skin contact may cause dermatitis, an allergic skin reaction.

Section 12: Ecological Information

Ecotoxic Effects: Harmful to aquatic life in very low concentrations. May be dangerous if it enters water intake; Fish toxicity; 2.8 µg/L 96 hrs LC50 Rainbow trout.

Products of Degradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. These products are sulphur oxides (SO₂, SO₃)

Toxicity of the Products of Degradation: The products of degradation are more toxic than the original product.

Section 13: Disposal Considerations

Waste disposal: The generation of waste should be avoided or minimized wherever possible. Cleaned up material may be a hazardous waste as defined by Resource Conservation and Recovery Act (RCRA) on disposal due to the corrosivity characteristic. Disposal of this product and any by-products must comply with all local, state, and federal requirements. Consult your local and/or regional authorities.

Section 14: Transport Information

Shipping Description:	Sulfuric Acid
Shipping Description:	UN 1830, Sulfuric Acid, 8, PG II
Packaging References:	49CFR, Sections 172.504, 173.213, 173.247, 172.325 / SP 30

Section 15: Regulatory Information

U.S. Federal regulations:

TSCA 8(b) inventory: Sulfuric acid
SARA 302/304/311/312 extremely hazardous substances: Sulfuric acid
SARA 313 toxic chemical notification and release reporting: Sulfuric acid
CERCLA: Hazardous Substances: Sulfuric acid: 1000 lbs. (453.6 kg)

Reportable Quantity (RQ) under U.S. EPA CERCLA: RQ=1000 lb / 454 kg
TSCA Inventory Status: Reported/Included

Other Regulations/Legislation which apply to this product: New Jersey Special Health Hazard Substance List and Environmental Hazardous Substance; Minnesota, Florida, Rhode Island Hazardous Substance ; California Director's List of Hazardous Substances; Massachusetts Extraordinarily Hazardous Substance List

Section 16: Other Information

Hazardous Material Information System (HMIS) National Fire Protection Association (NFPA)

Health	3
Fire hazard	0
Physical Hazard	2
Personal protection	C



- References:** 29 CFR Part 1910.1200 OSHA MSDS Requirements.
49 CFR 172.101 Table of Hazardous Materials
ANSI Z400.1, MSDS Standard, 2004.
Hawley's Condensed Chemical Dictionary, 14th Edition
The Merck Index, 12th Edition
Supplier Material Safety Data Sheets

LEGAL DISCLAIMER

While the information contained in the MSDS is believed to be reliable, no guarantee is made as to its accuracy or completeness. The conditions of use, handling, storage, and disposal, and the suitability of the product for particular uses are beyond our control. Consequently, all risks involving the use of the product are assumed by the user. We expressly disclaim all warranties of every kind and nature, express or implied, including the warranties of merchantability and fitness for a particular purpose.

SAFETY DATA SHEET

BETZ*DEARBORN DCL30

1. Identification

Product identifier BETZDEARBORN DCL30
Other means of identification None.
Recommended use Dechlorination agent
Recommended restrictions None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Serious eye damage/eye irritation Category 2B
Specific target organ toxicity, single exposure Category 3 respiratory tract irritation
OSHA defined hazards Not classified.

Label elements



Signal word Warning

Hazard statement Causes eye irritation. May cause respiratory irritation.

Precautionary statement

Prevention Avoid breathing mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area.

Response If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor// if you feel unwell. If eye irritation persists: Get medical advice/attention.

Storage Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose of contents/container to .

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Sodium bisulphite	7631-90-5	20 - 40

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Rinse skin with water/shower.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed Exposed individuals may experience eye tearing, redness, and discomfort. Irritation of eyes and mucous membranes. May cause respiratory irritation. Skin irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Water. Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors or mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling Vent carefully before opening. Sulfur dioxide can be formed during the normal use and handling of this product. Avoid breathing mist or vapor. Avoid contact with eyes. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Use care in handling/storage.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation. Avoid freezing. If frozen, thaw completely and mix thoroughly prior to use.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium bisulphite (CAS 7631-90-5)	TWA	5 mg/m ³

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Sodium bisulphite (CAS 7631-90-5)	TWA	5 mg/m ³

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Chemical goggles are recommended.
Skin protection	
Hand protection	Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	Chemical respirator with organic vapor cartridge and full facepiece. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Color	Colorless to light yellow
Physical state	Liquid
Odor	Strong
Odor threshold	Not available.
pH (concentrated product)	4.5
pH in aqueous solution	4.9 (5% SOL.)
Melting point/freezing point	18 °F (-8 °C)
Initial boiling point and boiling range	220 °F (104 °C)
Flash point	Not applicable.
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg

Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.27
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	6 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Calculated)
Pour point	23 °F (-5 °C)
Specific gravity	1.27

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials. None under normal conditions.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Oxides of sulphur evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Causes eye irritation.
Ingestion	Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics Irritation of eyes and mucous membranes. Exposed individuals may experience eye tearing, redness, and discomfort. May cause respiratory irritation. Skin irritation.

Information on toxicological effects

Acute toxicity May cause respiratory irritation.

Product	Species	Test Results
BETZDEARBORN DCL30 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Inhalation</i>		
LC50	Rat	> 5 mg/l, 4 hours, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	3320 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Sodium bisulphite (CAS 7631-90-5)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 5.5 mg/l, 4 Hour
<i>Oral</i>		
LD50	Rat	1420 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Causes eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Sodium bisulphite (CAS 7631-90-5) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not available.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

Product	Species	Test Results	
BETZDEARBORN DCL30 (CAS Mixture)			
LC50	Fathead Minnow	225 mg/L, Static Renewal Bioassay, 96 hour	
	Menidia beryllina (Silversides)	930 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)	
	Mysid Shrimp	370 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)	
	NOEL	Fathead Minnow	160 mg/L, Static Renewal Bioassay, 96 hour
		Menidia beryllina (Silversides)	156 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
		Mysid Shrimp	156 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
Aquatic			
Crustacea	LC50	Daphnia magna	225 mg/L, Static Renewal Bioassay, 48 hour
	NOEL	Daphnia magna	160 mg/L, Static Renewal Bioassay, 48 hour

Product	Species		Test Results
Fish	0% Mortality	Rainbow Trout	100 mg/L, Static Screen, 48 hour
	100% Mortality	Rainbow Trout	500 mg/L, Static Screen, 48 hour

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	Not available.
Persistence and degradability	
- COD (mgO2/g)	49 (calculated data)

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (SODIUM BISULFITE SOLUTION), RQ
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
ERG number	171

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

Not regulated as dangerous goods.

IMDG

UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (SODIUM BISULFITE SOLUTION), RQ
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT



IMDG



15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium bisulphite (CAS 7631-90-5) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

Inventory status

Country(s) or region

Canada

Canada

Inventory name

Domestic Substances List (DSL)

Non-Domestic Substances List (NDSL)

On inventory (yes/no)*

Yes

No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
 A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**NSF Registered and/or meets
 USDA (according to 1998
 guidelines):** Registration No. – 147820
 Category Code(s):
 G5 Cooling and retort water treatment products
 G6 Boiler treatment products, steam line products – food contact

US state regulations

US - Massachusetts RTK - Substance List

Sodium bisulphite (CAS 7631-90-5)

US - Pennsylvania RTK - Hazardous Substances

Sodium bisulphite (CAS 7631-90-5)

US - Rhode Island RTK

Sodium bisulphite (CAS 7631-90-5)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Sodium bisulphite (CAS 7631-90-5)

US. Pennsylvania Worker and Community Right-to-Know Law

Sodium bisulphite (CAS 7631-90-5)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Oct-16-2014
Revision date	Aug-03-2015
Version #	1.0

List of abbreviations

CAS: Chemical Abstract Service Registration Number
 TWA: Time Weighted Average
 STEL: Short Term Exposure Limit
 LD50: Lethal Dose, 50%
 LC50: Lethal Concentration, 50%
 EC50: Effect Concentration, 50%
 NOEL: No Observed Effect Level
 COD: Chemical Oxygen Demand
 BOD: Biochemical Oxygen Demand
 TOC: Total Organic Carbon
 CEN: European Committee for Standardisation
 IATA: International Air Transport Association
 IMDG: International Maritime Dangerous Goods Code
 NFPA: National Fire Protection Association
 ACGIH: American Conference of Governmental Industrial Hygienists
 TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.

References: No data available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision Information

Hazard(s) identification: Hazard statement
Hazard(s) identification: Prevention
Composition/information on ingredients: Composition comments
First-aid measures: Skin contact
First-aid measures: Most important symptoms/effects, acute and delayed
Handling and storage: Precautions for safe handling
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Toxicological Data
Toxicological information: Reproductive toxicity
Toxicological information: Inhalation
Toxicological information: Symptoms related to the physical, chemical and toxicological characteristics
Other information, including date of preparation or last revision: Prepared by
GHS: Classification

Prepared by

This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

* Trademark of General Electric Company. May be registered in one or more countries.

MATERIAL SAFETY DATA SHEET**Sodium Hypochlorite 3-20%****Section 01 - Product And Company Information**

Product Identifier Sodium Hypochlorite (3-20%)

Product Use Disinfectant, bleaching agent, source of available chlorine, deodorizer.

Supplier Name..... ClearTech Industries Inc.
1500 Quebec Avenue
Saskatoon, SK. Canada
S7K 1V7

Prepared By..... ClearTech Industries Inc. Technical Department
Phone: (306)664-2522

Preparation Date..... September 5, 2015

24-Hour Emergency Phone..... 306-664-2522

**Section 02 - Composition / Information on Ingredients**

Hazardous Ingredients..... Sodium Hypochlorite 3.02-16.80%

CAS Number..... Sodium Hypochlorite 7681-52-9

Synonym (s)..... Industrial bleach, hypo, bleach, Javel water, household bleach, Hypochlor-12

Section 03 - Hazard Identification



- Inhalation**..... Irritant of the nose and throat, causing coughing, difficulty breathing, and pulmonary edema.
- Skin Contact / Absorption**..... Causes severe skin irritation with blistering and ulceration.
- Eye Contact**..... Causes severe irritation of the mucous membranes of the eyes. May cause severe eye damage.
- Ingestion**..... Burning of the mouth and throat, abdominal cramps, nausea, vomiting, diarrhea, shock. May lead to convulsions, coma, and even death.
- Exposure Limits**..... ACGIH/TLV-TWA: 0.5ppm (chlorine)

Section 04 - First Aid Measures

- Inhalation**..... Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.
- Skin Contact / Absorption**..... Remove contaminated clothing. Wash affected area with soap and water. Seek medical attention if irritation occurs or persists.
- Eye Contact**..... Flush immediately with water for at least 20 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye tissue. Seek immediate medical attention.
- Ingestion**..... Do not induce vomiting. If vomiting occurs, lean victim forward to prevent breathing in vomitus. Give large amounts of water. Do not give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention.
- Additional Information**..... Not available

Section 05 - Fire Fighting Measures

- Conditions of Flammability**..... Non-flammable
- Means of Extinction**..... Product does not burn. Use appropriate extinguishing media for material that is supplying the fuel to the fire.
- Flash Point**..... Not applicable
- Auto-ignition Temperature**..... Not applicable



Upper Flammable Limit Not applicable

Lower Flammable Limit..... Not applicable

Hazardous Combustible Products... Decomposition may produce chlorine gas and/or hydrogen chloride gas.

Special Fire Fighting Procedures..... Wear NIOSH-approved self-contained breathing apparatus and protective clothing.

Explosion Hazards..... Pressure buildup in containers could result in an explosion when heated or in contact with acidic fumes. Vigorous reaction with oxidizable organic materials may result in a fire.

Section 06 - Accidental Release Measures

Leak / Spill..... Wear appropriate personal protective equipment. Ventilate area. Stop or reduce leak if safe to do so. Restrict access to spill area until clean up is complete. Prevent material from entering sewers, waterways or confined spaces. Soak up smaller spills with absorbent material that does not react with spilled material. Flush with water to remove any residue.

Deactivating Materials..... Spills can be carefully neutralized first with sodium sulphite, sodium metabisulphite or other dechlorination agent for no chlorine residual, then a pH adjustment may be required with hydrochloric acid until the pH is 7. Note neutralization reactions may produce heat so necessary precautions must be taken. Local regulatory agencies should also be contacted for proper disposal.

Section 07 - Handling and Storage

Handling Procedures..... Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.

Storage Requirements..... Store in a cool, dry, well-ventilated place. Keep container tightly closed, and away from incompatible materials. Venting of containers is advisable.

Section 08 - Personal Protection and Exposure Controls

Protective Equipment

Eyes..... Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.



- Respiratory**..... A NIOSH-approved respirator suitable for chlorine is recommended. Where a higher level of protection is required, use a self-contained breathing apparatus.
- Gloves**..... Impervious gloves of chemically resistant material (rubber or PVC) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
- Clothing**..... Body suits, aprons, and/or coveralls of chemical resistant material should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
- Footwear**..... Impervious boots of chemically resistant material should be worn at all times.

Engineering Controls

- Ventilation Requirements**..... Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided. Supply sufficient replacement air to make up for air removed by exhaust systems.
- Other**..... Emergency shower and eyewash should be in close proximity.

Section 09 - Physical and Chemical Properties

- Physical State**..... Liquid
- Odor and Appearance**..... Strong chlorine odour. Clear, greenish-yellow solution.
- Odor Threshold**..... Not available
- Specific Gravity (Water=1)**..... 1.17 at 20°C (12% trade)
- Vapor Pressure (mm Hg, 20C)**..... 12.1mm Hg at 20°C (12.5 wt %)
- Vapor Density (Air=1)**..... Not available
- Evaporation Rate**..... Not available
- Boiling Point**..... Slowly decomposes above 40°C.
- Freeze/Melting Point**..... ~ -15°C (12% trade)
- pH**..... < 12
- Water/Oil Distribution Coefficient**.... Not available



Bulk Density..... Not available
% Volatiles by Volume..... Not available
Solubility in Water..... Complete
Molecular Formula..... NaOCl
Molecular Weight..... 74.44

Section 10 - Stability and Reactivity

Stability..... Unstable at temperatures above 40°C, in sunlight, and in contact with acid.
Incompatibility..... Incompatible with strong acids, ammonia, oxidizable materials, nickel, copper, tin, manganese, and iron.
Hazardous Products of Decomposition.. Chlorine (by reaction with acids), oxygen (by reaction with nickel, copper, tin, manganese, iron), sodium chloride, sodium chlorate, with increased temperature.
Polymerization..... Will not occur

Section 11 - Toxicological Information

Irritancy..... Strong irritant
Sensitization..... Not available
Chronic/Acute Effects..... If over-exposed to the solution, there will be constant irritation of the eyes, nose, and throat.
Synergistic Materials..... Not available
Animal Toxicity Data..... LD₅₀(oral, rat): 8910mg/kg (undiluted sodium hypochlorite)
Carcinogenicity..... Not considered to be carcinogenic (IARC and ACGIH).
Reproductive Toxicity..... Not available
Teratogenicity..... Not available
Mutagenicity..... Not available



Section 12 - Ecological Information

Fish Toxicity..... Not available
Biodegradability..... Not available
Environmental Effects..... Not available

Section 13 - Disposal Consideration

Waste Disposal..... Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 14 - Transport Information

TDG Classification

Class..... 8 (not regulated at solutions below 7%)
Group..... III (not regulated at solutions below 7%)
PIN Number..... UN 1791(not regulated at solutions below 7%)
Other..... Secure containers (full and/or empty) with suitable hold down devises during shipment.

Section 15 - Regulatory Information

WHMIS Classification.....E

NOTE: THE PRODUCT LISTED ON THIS MSDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS MSDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

NSF Certification.....Product is certified under NSF/ANSI Standard 60 for disinfection and oxidation at a maximum dosage for the following:

sodium hypochlorite 5%: 174mg/L
sodium hypochlorite 6%: 145mg/L
sodium hypochlorite 7%: 125mg/L
sodium hypochlorite 8%: 109mg/L
sodium hypochlorite 9%: 97mg/L
sodium hypochlorite 10%: 87mg/L
sodium hypochlorite 11%: 79mg/L
sodium hypochlorite 12%: 72mg/L
sodium hypochlorite 13%: 67mg/L
sodium hypochlorite 14%: 62mg/L
sodium hypochlorite 15%: 58mg/L



sodium hypochlorite 16%: 55mg/L
 sodium hypochlorite 17%: 51mg/L
 sodium hypochlorite 18%: 48mg/L
 sodium hypochlorite 19%: 46mg/L
 sodium hypochlorite 20%: 43mg/L

NOTE: Any product strength below 7% is not regulated by TDG.

Sanitizer Use: to obtain 10 liters of a 200 mg/L solution as available chlorine, use 16.7 mL of Hypochlor-12 for each 10 liters of clean, potable water.

Section 16 - Other Information

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

Attention: Receiver of the chemical goods / MSDS coordinator

As part of our commitment to the Canadian Association of Chemical Distributors (CACD) Responsible Distribution® initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Material Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service or technical service department.

ClearTech Industries Inc. - Locations

Corporate Head Office: 1500 Quebec Avenue, Saskatoon, SK, S7K 1V7

Phone: 306-664-2522

Fax: 306-665-6216

www.ClearTech.ca

Location	Address	Postal Code	Phone Number	Fax Number
Richmond, B.C.	12431 Horseshoe Way	V7A 4X6	604-272-4000	604-272-4596
Calgary, AB.	5516E - 40 th St. S.E.	T2C 2A1	403-279-1096	403-236-0989
Edmonton, AB.	11750 - 180 th Street	T5S 1N7	780-452-6000	780-452-4600
Saskatoon, SK.	19 Peters Ave, North Corman Park	S7K 1V7	306-933-0177	306-933-3282
Regina, SK.	555 Henderson Drive	S42 5X2	306-721-7737	306-721-8611
Winnipeg, MB.	340 Saulteaux Crescent	R3J 3T2	204-987-9777	204-987-9770
Mississauga, ON.	7480 Bath Road	L4T 1L2	905-612-0566	905-612-0575

24 Hour Emergency Number - All Locations - 306-664-2522



SAFETY DATA SHEET

Nemco Propylene Glycol Inhibited and Dyed, Pure

Section 1. Identification

GHS product identifier	: Nemco Propylene Glycol Inhibited and Dyed, Pure
Trade name	: Nemco Propylene Glycol
Other means of identification	: 1,2-Propanediol, 1,2-Propylene Glycol
Product code	: 0684 / 0687
Product type	: Liquid.
Identified uses	: Non-toxic industrial antifreeze and coolant, heat transfer fluid
Supplier/Manufacturer	: Nemco Resources Ltd 25 Midland Street Winnipeg, Manitoba R3E 3J6 PH 204.788.1030 FX 204.788.1593 TF 855.755.6737 EM info@nemco.ca WEB www.nemco.ca
Emergency telephone number (with hours of operation)	: CANUTEC: +1-613-996-6666 or *666 (cellular) (24/7) Nemco: Monday-Friday 8am-4:30pm 204.788.1030 or Toll free 1-855-755-6737

Section 2. Hazard identification

Classification of the substance or mixture : EYE IRRITATION - Category 2B

GHS label elements

Signal word	: Warning
Hazard statements	: H320 - Causes eye irritation.
<u>Precautionary statements</u>	
Prevention	: P264 - Wash hands thoroughly after handling.
Response	: P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
Storage	: Not applicable.
Disposal	: Not applicable.
Other hazards which do not result in classification/ HHNOC/PHNOC	: None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture
Other means of identification : 1,2-Propanediol, 1,2-Propylene Glycol

CAS number/other identifiers

CAS number : Not applicable.
Product code : 0684 / 0687

Ingredient name	% (w/w)	CAS number
Propane-1,2-diol	>99	57-55-6

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. If irritation persists, get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes eye irritation.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
 pain or irritation
 watering
 redness

Section 4. First-aid measures

- Inhalation** : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments : No specific treatment.
Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : No special measures are required.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Section 6. Accidental release measures

- Spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Propane-1,2-diol	CA Ontario Provincial (Canada, 7/2015). TWA: 10 mg/m ³ 8 hours. Form: Aerosol only TWA: 155 mg/m ³ 8 hours. Form: Vapor and aerosol TWA: 50 ppm 8 hours. Form: Vapor and aerosol

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Pink.
- Odor** : Mild.
- Odor threshold** : Not available.
- pH** : 9.5 - 10.5
- Freezing point** : >-50°C (>-58°F)
- Boiling point** : Not available.
- Flash point** : Closed cup: 98°C (208.4°F)
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : 1.027 - 1.033
- Solubility** : Miscible in water.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Not available.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : No specific data.
- Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Propane-1,2-diol	LD50 Dermal	Rabbit	20800 mg/kg	-
	LD50 Oral	Rat	20 g/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Propane-1,2-diol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Eyes - Mild irritant	Rabbit	-	100 mg	-

Sensitization

There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

There is no data available.

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

There is no data available.

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

Information on the likely routes of exposure : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eye contact : Causes eye irritation.

Section 11. Toxicological information

- Inhalation** : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
 pain or irritation
 watering
 redness
- Inhalation** : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : No known significant effects or critical hazards.
Potential delayed effects : No known significant effects or critical hazards.

Long term exposure

- Potential immediate effects** : No known significant effects or critical hazards.
Potential delayed effects : No known significant effects or critical hazards.

Potential chronic health effects

- General** : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

There is no data available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Propane-1,2-diol	Acute EC50 >110 ppm Fresh water Acute LC50 1020000 µg/L Fresh water Acute LC50 710000 µg/L Fresh water	Daphnia - Daphnia magna Crustaceans - Ceriodaphnia dubia Fish - Pimephales promelas	48 hours 48 hours 96 hours

Persistence and degradability

There is no data available.

Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
Propane-1,2-diol	-1.07	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : There is no data available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	TDG Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

AERG : Not applicable

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
EYE IRRITATION - Category 2B	Calculation method

History

Date of issue : 11/15/2016

Version : 1

Prepared by : KMK Regulatory Services Inc.

Key to abbreviations : ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations
 HPR = Hazardous Products Regulations

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

EMERGENCY OVERVIEW

DANGER!

**EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT
- EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF
SWALLOWED - ASPIRATION HAZARD**



NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs):
COMPANY CONTACT (business hours):
MSDS (Environment, Health, Safety) Internet Website

CHEMTREC (800)424-9300
Corporate Safety (732)750-6000
www.hess.com

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS *

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME).



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION

EYES

Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES

EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Low Expansion Foam - 1994 Edition."

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

*****USE ONLY AS A MOTOR FUEL*****

*****DO NOT SIPHON BY MOUTH*****

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Component (CAS No.)	Source	TWA (ppm)	STEL (ppm)	Exposure Limits	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3	
Benzene (71-43-2)	OSHA	1	5	Carcinogen	
	ACGIH	0.5	2.5	A1, skin	
	USCG	1	5		
n-Butane (106-97-8)	ACGIH	1000	--	Aliphatic Hydrocarbon Gases Alkane (C1-C4)	
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--		
	ACGIH	1000	--	A4	
Ethyl benzene (100-41-4)	OSHA	100	--		
	ACGIH	100	125	A3	
n-Hexane (110-54-3)	OSHA	500	--		
	ACGIH	50	--	Skin	
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50	--	A3	
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established	
Toluene (108-88-3)	OSHA	200	--	Ceiling: 300 ppm; Peak: 500 ppm (10 min.)	
	ACGIH	20	--	A4	
1,2,4-Trimethylbenzene (95-63-6)	ACGIH	25	--		
Xylene, mixed isomers (1330-20-7)	OSHA	100	--		
	ACGIH	100	150	A4	

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

A translucent, straw-colored or light yellow liquid



MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

ODOR

A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	<u>Odor Detection</u>	<u>Odor Recognition</u>
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H ₂ O = 1):	0.70 - 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %
SOLUBILITY (H ₂ O):	Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

10. STABILITY and REACTIVITY)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitroresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY

Acute Dermal LD50 (rabbits): > 5 ml/kg	Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating	Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative	

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.



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This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: Gasoline
DOT HAZARD CLASS and PACKING GROUP: 3, PG II
DOT IDENTIFICATION NUMBER: UN 1203
DOT SHIPPING LABEL: FLAMMABLE LIQUID

PLACARD:



15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

Table with 5 columns: ACUTE HEALTH, CHRONIC HEALTH, FIRE, SUDDEN RELEASE OF PRESSURE, REACTIVE. Values: X, X, X, --, --

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

Table with 2 columns: INGREDIENT NAME (CAS NUMBER), CONCENTRATION WT. PERCENT. Rows: Benzene (71-43-2) 0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline), Ethyl benzene (100-41-4) < 3



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n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>CONCENTRATION - Parts per million (ppm) by weight</u>
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>Date Listed</u>
Benzene	2/27/1987
Ethyl benzene	6/11/2004
Toluene	1/1/1991

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)
Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION

<u>NFPA® HAZARD RATING</u>	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
<u>HMIS® HAZARD RATING</u>	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	PHYSICAL:	0	Minimal

* CHRONIC

SUPERSEDES MSDS DATED: 07/01/06

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
AIHA	American Industrial Hygiene Association	DOT	U.S. Department of Transportation
ANSI	American National Standards Institute (212)642-4900		[General Info: (800)467-4922]
API	American Petroleum Institute (202)682-8000	EPA	U.S. Environmental Protection Agency
		HMIS	Hazardous Materials Information System



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IARC	International Agency For Research On Cancer	REL	Recommended Exposure Limit (NIOSH)
MSHA	Mine Safety and Health Administration	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
NFPA	National Fire Protection Association (617)770-3000	SCBA	Self-Contained Breathing Apparatus
NIOSH	National Institute of Occupational Safety and Health	SPCC	Spill Prevention, Control, and Countermeasures
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	STEL	Short-Term Exposure Limit (generally 15 minutes)
NTP	National Toxicology Program	TLV	Threshold Limit Value (ACGIH)
OPA	Oil Pollution Act of 1990	TSCA	Toxic Substances Control Act
OSHA	U.S. Occupational Safety & Health Administration	TWA	Time Weighted Average (8 hr.)
PEL	Permissible Exposure Limit (OSHA)	WEEL	Workplace Environmental Exposure Level (AIHA)
RCRA	Resource Conservation and Recovery Act	WHMIS	Workplace Hazardous Materials Information System (Canada)

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

MOLYKOTE(R) 111 COMPOUND

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Date of first issue: 03/24/2015

SECTION 1. IDENTIFICATION

Product name : MOLYKOTE(R) 111 COMPOUND

Product code : 00000000001889834

Manufacturer or supplier's details

Company name of supplier : Dow Corning Corporation

Address : South Saginaw Road
Midland Michigan 48686

Telephone : (989) 496-6000

Emergency telephone : 24 Hour Emergency Telephone : (989) 496-5900
CHEMTREC : (800) 424-9300

Recommended use of the chemical and restrictions on use

Recommended use : Lubricants and lubricant additives

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Not a hazardous substance or mixture.

GHS Label element

Not a hazardous substance or mixture.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Silicone grease

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Silicon dioxide	7631-86-9	>= 5 - < 10

SECTION 4. FIRST AID MEASURES

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : Wash with water and soap as a precaution.
Get medical attention if symptoms occur.

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In case of eye contact	:	Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.
If swallowed	:	If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	:	None known.
Protection of first-aiders	:	No special precautions are necessary for first aid responders.
Notes to physician	:	Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Silicon oxides Formaldehyde Boron oxides
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Follow safe handling advice and personal protective equipment recommendations.
Environmental precautions	:	Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water.

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Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Soak up with inert absorbent material.
 For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent.
 Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
 Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice.
 Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Keep in properly labeled containers.
 Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:
 Strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Silicon dioxide	7631-86-9	TWA (Dust)	20 Million particles per cubic foot (Silica)	OSHA Z-3
		TWA (Dust)	80 mg/m ³ / %SiO ₂ (Silica)	OSHA Z-3
		TWA	6 mg/m ³ (Silica)	NIOSH REL

Engineering measures : Processing may form hazardous compounds (see section 10).
 Ensure adequate ventilation, especially in confined areas.

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Minimize workplace exposure concentrations.

Personal protective equipment

- Respiratory protection : No personal respiratory protective equipment normally required.
- Hand protection
- Remarks : Wash hands before breaks and at the end of workday.
- Eye protection : Wear the following personal protective equipment:
Safety glasses
- Skin and body protection : Skin should be washed after contact.
- Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.
These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.
-

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Grease
- Color : white, translucent
- Odor : none
- Odor Threshold : No data available
- pH : Not applicable
- Melting point/freezing point : No data available
- Initial boiling point and boiling range : Not applicable
- Flash point : > 101.1 °C
Method: closed cup
- Evaporation rate : Not applicable
- Flammability (solid, gas) : Not classified as a flammability hazard
- Upper explosion limit : No data available
- Lower explosion limit : No data available
- Vapor pressure : Not applicable

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Relative vapor density	:	No data available
Relative density	:	1.1
Solubility(ies)	:	
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	
Viscosity, dynamic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Use at elevated temperatures may form highly hazardous compounds. Can react with strong oxidizing agents. Hazardous decomposition products will be formed at elevated temperatures.
Conditions to avoid	:	None known.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	
Thermal decomposition	:	Formaldehyde

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Ingredients:

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Silicon dioxide:

Acute oral toxicity : LD50 (Rat): > 3,300 mg/kg
Assessment: The substance or mixture has no acute oral toxicity
Remarks: Information taken from reference works and the literature.

Acute inhalation toxicity : LC50 (Rat): > 2.08 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Information taken from reference works and the literature.

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Information taken from reference works and the literature.

Skin corrosion/irritation

Not classified based on available information.

Ingredients:**Silicon dioxide:**

Result: No skin irritation

Remarks: Information taken from reference works and the literature.

Serious eye damage/eye irritation

Not classified based on available information.

Ingredients:**Silicon dioxide:**

Result: No eye irritation

Remarks: Information taken from reference works and the literature.

Respiratory or skin sensitization

Skin sensitization: Not classified based on available information.

Respiratory sensitization: Not classified based on available information.

Ingredients:**Silicon dioxide:**

Assessment: Does not cause skin sensitization.

Test Type: Skin: test type not specified

Species: Guinea pig

Remarks: Information taken from reference works and the literature.

Germ cell mutagenicity

Not classified based on available information.

Ingredients:

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Silicon dioxide:

Genotoxicity in vitro : Result: negative
Remarks: Information taken from reference works and the literature.

Genotoxicity in vivo : Application Route: Ingestion
Result: negative
Remarks: Information taken from reference works and the literature.

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

Carcinogenicity

Not classified based on available information.

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity**

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

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Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Resource Conservation and Recovery Act (RCRA) : This product has been evaluated for RCRA characteristics and does not meet the criteria of hazardous waste if discarded in its purchased form.

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION**International Regulation****UNRTDG**

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation**49 CFR**

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION**EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations**Pennsylvania Right To Know**

Dimethyl siloxane, trimethylsiloxy-terminated	63148-62-9	70 - 90 %
Silicon dioxide	7631-86-9	5 - 10 %
Silicone Metalloid Complex	Proprietary Ingredient	5 - 10 %

New Jersey Right To Know

Dimethyl siloxane, trimethylsiloxy-terminated	63148-62-9	70 - 90 %
Silicon dioxide	7631-86-9	5 - 10 %
Silicone Metalloid Complex	Proprietary Ingredient	5 - 10 %

California Prop. 65 This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

The ingredients of this product are reported in the following inventories:

NZIoC : All ingredients listed or exempt.

REACH : All ingredients (pre-)registered or exempt.

TSCA : All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

PICCS : All ingredients listed or exempt.

KECI : All ingredients listed, exempt or notified.

AICS : All ingredients listed or exempt.

IECSC : All ingredients listed or exempt.

ENCS/ISHL : All components are listed on ENCS/ISHL or exempted from inventory listing.

DSL : This product contains one or more substances which are not on the Canadian Domestic Substances List (DSL). Import of this product into Canada has volume limitations. For volume limits please consult Dow Corning Regulatory Compliance.

TCSI : All ingredients listed or exempt.

Registration: Trade Secret

Component	Registration number
Silicone Metalloid Complex	NJ TSRN 14962700-8472P

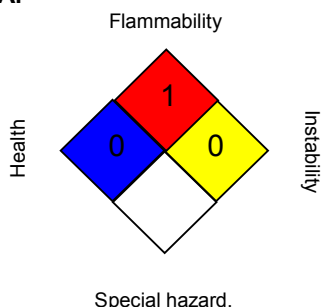
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SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	0
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
 2 = Moderate, 3 = High
 4 = Extreme, * = Chronic

Full text of other abbreviations

NIOSH REL : USA. NIOSH Recommended Exposure Limits
 OSHA Z-3 : USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
 NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
 OSHA Z-3 / TWA : 8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Re-

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covery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 09/24/2015

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8



Nitric Acid CAS No 7697-37-2	MATERIAL SAFETY DATA SHEET SDS/MSDS
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : **Nitric Acid**

CAS-NO. : 7697-37-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet

Company : Central Drug House (P) Ltd
7/28 Vardaan House
New Delhi-10002
INDIA

Telephone : +91 11 49404040
Email : care@cdhfinechemical.com

1.4 Emergency telephone number

Emergency Phone # : +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Oxidizing liquids (Category 3), H272
Skin corrosion (Category 1A), H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

O Oxidising R 8
C Corrosive R35

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word	Danger
Hazard statement(s)	
H272	May intensify fire; oxidiser.
H314	Causes severe skin burns and eye damage.

Precautionary statement(s)	
P220	Keep/Store away from clothing/ combustible materials.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P310	
Supplemental Hazard Statements	none

2.3 Other hazards - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Molecular Weight	:	63,01 g/mol
EC-No.	:	231-714-2
Index-No.	:	007-004-00-1

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Nitric acid	Ox. Liq. 3; Skin Corr. 1A; H272, H314	-

Hazardous ingredients according to Directive 1999/45/EC

Component	Classification	Concentration
Nitric acid	O, C, R 8 - R35	-

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

- 5.2 Special hazards arising from the substance or mixture**
nitrogen oxides (NOx)
- 5.3 Advice for firefighters**
Wear self contained breathing apparatus for fire fighting if necessary.
- 5.4 Further information**
Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.
- 6.2 Environmental precautions**
Do not let product enter drains.
- 6.3 Methods and materials for containment and cleaning up**
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).
- 6.4 Reference to other sections**
For disposal see section 13.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling**
Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.
For precautions see section 2.2.
- 7.2 Conditions for safe storage, including any incompatibilities**
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- 7.3 Specific end use(s)**
A part from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

- 8.1 Control parameters**
Components with workplace control parameters
- 8.2 Exposure controls**
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- Personal protective equipment**
- Eye/face protection**
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).
- Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|---|--|
| a) Appearance | Form: liquid
Colour: colourless |
| b) Odour | no data available |
| c) Odour Threshold | no data available |
| d) pH | < 1 at 20 °C |
| e) Melting point/freezing point | no data available |
| f) Initial boiling point and boiling range | 100 °C at 1.013 hPa |
| g) Flash point | no data available |
| h) Evaporation rate | no data available |
| i) Flammability (solid, gas) | no data available |
| j) Upper/lower flammability or explosive limits | no data available |
| k) Vapour pressure | 11 hPa at 20 °C |
| l) Vapour density | no data available |
| m) Relative density | 1,4 g/cm ³ |
| n) Water solubility | completely soluble |
| o) Partition coefficient: n-octanol/water | no data available |
| p) Auto-ignition temperature | no data available |
| q) Decomposition temperature | no data available |
| r) Viscosity | no data available |
| s) Explosive properties | no data available |
| t) Oxidizing properties | The substance or mixture is classified as oxidizing with the category 3. |

9.2 Other safety information

no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

May discolor on exposure to air and light.

10.5 Incompatible materials

Alkali metals, Organic materials, Acetic anhydride, Acetonitrile, Alcohols, Acrylonitrile

10.6 Hazardous decomposition products

Other decomposition products - no data available

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

no data available

Skin corrosion/irritation

Skin - rabbit

Result: Extremely corrosive and destructive to tissue.

(Draize Test)

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

Reproductive toxicity - rat - Oral

Effects on Newborn: Biochemical and metabolic.

Developmental Toxicity - rat - Oral

Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Additional Information

RTECS: Not available

Large doses may cause: conversion of hemoglobin to methemoglobin, producing cyanosis; marked fall in blood pressure, leading to collapse, coma, and possibly death., Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish LC50 - Asterias rubens - 100 - 330 mg/l - 48 h

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

May be harmful to aquatic organisms due to the shift of the pH.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 2031

IMDG: 2031

IATA: 2031

14.2 UN proper shipping name

ADR/RID: NITRIC ACID

IMDG: NITRIC ACID

IATA: Nitric acid

Passenger Aircraft: Not permitted for transport

14.3 Transport hazard class(es)

ADR/RID: 8 (5.1)

IMDG: 8 (5.1)

IATA: 8 (5.1)

14.4 Packaging group

ADR/RID: I

IMDG: I

IATA: I

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user

no data available

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

no data available

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H272	May intensify fire; oxidiser.
H314	Causes severe skin burns and eye damage.
Ox. Liq.	Oxidizing liquids
Skin Corr.	Skin corrosion

Full text of R-phrases referred to under sections 2 and 3

C	Corrosive
O	Oxidising
R 8	Contact with combustible material may cause fire.
R35	Causes severe burns.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.cdhfinechemical.com for additional terms and conditions of sale.