

GROUP	4	HERBICIDE
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## PULSAR® Herbicide

HERBICIDE

EMULSIFIABLE CONCENTRATE

AGRICULTURAL

A post emergence herbicide for control of broadleaf weeds in spring wheat, durum wheat and barley.

For sale and for use only in the Prairie Provinces and Peace River Region of British Columbia.

### GUARANTEE:

Dicamba ..... 86.9 g a.e./L  
(present as diglycolamine salt)

Fluroxypyr ..... 113.3 g a.e./L  
(present as 1-methylheptyl ester)

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

**WARNING - EYE AND SKIN IRRITANT**

REGISTRATION NO.: **29450**  
PEST CONTROL PRODUCTS ACT

**Syngenta Canada Inc.**  
140 Research Lane, Research Park  
Guelph, ON  
N1G 4Z3  
Telephone: 1-877-964-3682

## NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

## FIRST AID

**IN CASE OF POISONING**, contact a physician or a poison control centre **IMMEDIATELY**. Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

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

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

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

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

## TOXICOLOGICAL INFORMATION

This product contains petroleum distillates. Do not induce vomiting. Treat symptomatically for ingestion, inhalation, skin or eye contact.

## PRECAUTIONS

- KEEP OUT OF THE REACH OF CHILDREN.
- Causes eye and skin irritation. DO NOT get in eyes or on skin.
- Do not ingest.
- Avoid contact with clothing. Wear coveralls or long sleeved shirt and long pants, chemical resistant gloves, and goggles when mixing, loading or during equipment clean up or repair.
- Goggles and chemical resistant gloves are not required during application.
- Wash gloves thoroughly with soap and water before removing them during any operation.
- Wash hands thoroughly with soap and water after using this product and before eating, drinking or smoking.
- Remove contaminated clothing immediately after use. Store and wash contaminated clothing separately from household laundry before reuse. Wash thoroughly with soap and water after handling. Handle and apply only as recommended on this label.
- Do not eat, drink or smoke while mixing, loading or during application.

- DO NOT enter treated fields until 12 hours after application.

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

## **STORAGE**

Store the product in closed original container in a well-ventilated room. Keep out of reach of children, unauthorised persons and animals. To prevent contamination, store this product away from food or feed.

## **DECONTAMINATION AND DISPOSAL**

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

### **CONTAINER DISPOSAL:**

#### **FOR DISPOSAL OF PLASTIC JUGS:**

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

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

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

#### **FOR REFILLABLE CONTAINERS:**

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

***IN CASE OF EMERGENCY INVOLVING A MAJOR SPILL, FIRE OR POISONING,  
CALL 1-800-327-8633 (FASTMED)***

## **GENERAL PRECAUTIONS**

1. Do not apply on or near desirable trees or plants, or in locations where chemical may be washed into contact with their roots.
2. Apply PULSAR® Herbicide when the air temperature is between 10 and 25 °C for best results. Do not apply when there is a risk of a severe fall in night temperature after use.
3. Do not contaminate domestic or irrigation waters. Thoroughly clean application

equipment after use.

4. Do not treat areas where movement of the chemical into the soil or where surface washing may bring PULSAR Herbicide into contact with the roots of desirable plants.
5. Crop damage can occur if the chemical is applied at any time other than the recommended crop stage.  
**NOTE:** Crop injury may occur if application is made to crops that have been stressed by abnormally hot, humid or cold weather conditions, frost, low fertility, drought, water saturated soil, compacted soil, previous pesticide applications, disease or insect damage etc. However, crop injury that may occur is usually offset by the weed control obtained.
6. Do not use additives such as oil, wetting agents, emulsifiers, detergents, spreaders, sticking agents, or dispersing agents with PULSAR Herbicide on crops unless otherwise specified.
7. Read and follow the label instructions for the tank-mix products noting pertinent recommendations, directions for use, restrictions or additional weeds controlled.
8. Do not apply through any type of irrigation system.
9. To avoid subsequent injury to other crops, thoroughly clean application equipment immediately after spraying. Ensure that all traces of the product are removed. See section on suggested procedure for cleaning spray equipment.
10. DO NOT use in residential areas, which are defined as sites where bystanders may be present during or after spraying, including homes, schools, parks, playgrounds, playing fields and public buildings.

## CROP ROTATION

Fields previously treated with PULSAR Herbicide can be seeded the following year to barley, canola, flax, forage grasses, lentils, mustard, oats, peas, rye or wheat or fields can be summerfallowed.

PULSAR Herbicide may cause injury to desirable trees and plants, particularly soybeans, flowers, fruit trees, grapes, ornamentals, peas, potatoes, tomatoes and tobacco and other broadleaf crops especially in their developmental and growing stage. Follow these precautions when spraying PULSAR Herbicide in areas where sensitive crops are grown.

1. Avoid making applications where spray particles may be carried by air currents onto nearby sensitive crops. Apply when wind is 3 to 15 km/hr. Do not apply during periods of dead calm or when weather conditions may cause drift from target areas to adjacent sensitive crops. Leave an adequate buffer zone between areas to be treated and sensitive plants.
2. Apply with coarse spray droplets since they are less likely to drift than fine spray droplets. Select nozzles which minimize the amount of fine spray particles. Apply in a minimum of 220 L/ha spray volume and a maximum pressure of 150 kPa unless otherwise required by the nozzle manufacturer.
3. Do not apply PULSAR Herbicide when the temperature on the day of application is expected to exceed 30 °C as drift is more likely to occur.
4. Ensure that spray equipment used to apply PULSAR Herbicide is properly cleaned before reusing to apply any other chemicals.
5. Avoid spraying under conditions of high humidity or fog to prevent drift to adjacent crops.

**Ground Application only**

Apply PULSAR Herbicide alone or in tank mix in at least 110 litres of water/ha.

**DO NOT APPLY BY AIR.**

**ENVIRONMENTAL HAZARDS**

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

This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms.

**PRODUCT INFORMATION**

PULSAR Herbicide is a systemic, post-emergence herbicide for the selective control of: cleavers, wild buckwheat, kochia, Russian thistle, redroot pigweed (suppression only), lamb's quarter (suppression only), volunteer flax, stork's bill (suppression only) in spring wheat, durum wheat and barley in western Canada.

**MODE OF ACTION**

PULSAR Herbicide moves within the plant to control both exposed and underground plant tissues. The product controls weeds by disrupting normal plant growth patterns. Symptoms include epinasty (twisting of the stems) and swollen nodes.

**DIRECTIONS FOR USE**

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow.

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

Avoid application when heavy rain is forecast.

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

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

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

Field sprayer application: DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American

Society of Agricultural Engineers (ASAE) medium classification. Boom height must be 60 cm or less above the crop or ground.

### Buffer zones:

Use of the following spray methods or equipment DOES NOT require a buffer zone: hand-held or backpack sprayer, spot treatment, inter-row hooded sprayer, soil drench and soil incorporation.

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

### Buffer Zones for Uses in Agriculture Sites using ASAE Medium Applications

Application Method	Buffer Zone for Protection Of	
	Terrestrial Habitats (m)	Aquatic Habitats (m)
Field Sprayer <sup>1</sup>	15	15

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

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

**DO NOT** apply by air.

PULSAR Herbicide can be used on all varieties of spring wheat, durum wheat and barley. **One application per year is permitted.** Apply when crop is in the 2-5 leaf stage.

**Table 1. PULSAR HERBICIDE WHEN APPLIED ALONE**

Crops	Rate /Ha	Weeds
Spring wheat Durum wheat Spring barley	0.607 - 0.917 L	cleavers , wild buckwheat* (up to the 9-leaf stage), kochia (up to the 9-leaf stage), Russian thistle**, redroot pigweed** (suppression only), lamb's quarter** (suppression only), volunteer flax**, stork's bill (suppression only)**

\* Use the 0.917 L/ha rate to obtain control of wild buckwheat. The 0.607 L/ha rate will provide suppression of wild buckwheat.

\*\* 0.917 L/ha rate only.

**Table 2. PULSAR HERBICIDE (0.607 - 0.917 L/HA) APPLIED WITH TANK MIX PARTNERS\*\*\***

Herbicide Tank-Mix Partner	Rate/Ha of Tank-Mix Partner	Crops 2-5 leaf growth stage (BBCH) (12 - 15)	Weeds Controlled
MCPA Ester (600 series)*	0.583 L	Spring wheat Durum wheat Spring barley	Weed claims listed in Table 1 + Control of wild buckwheat at 0.607 L/ha rate of PULSAR Herbicide + Burdock, cocklebur, stinkweed, flixweed**, kochia, lamb's quarter, mustards (except dog & green tansy), prickly lettuce, ragweeds, Russian pigweed, shepherd's purse, volunteer canola
HORIZON <sup>®</sup> HERBICIDE TANK MIX HERBICIDE (HORIZON 240EC**** Herbicide + 0.8% v/v SCORE <sup>®</sup> Adjuvant)	0.23 L	Spring wheat Durum wheat	Broadleaf weed claims listed in Table 1 + Annual Grass Weeds on the HORIZON HERBICIDE TANK MIX label listed as controlled at a rate of 0.23 L/ha HORIZON 240EC + 0.8 %v/v SCORE Adjuvant. Reduced control of grass weeds may be observed.
HORIZON <sup>®</sup> HERBICIDE TANK MIX HERBICIDE (HORIZON 240EC**** Herbicide + 0.8% v/v SCORE <sup>®</sup> Adjuvant) + MCPA Ester (600 series)*	0.23 L + 0.583 L	Spring wheat Durum wheat	Broadleaf weed claims listed above as controlled by the PULSAR Herbicide and MCPA Ester tank-mix + Annual Grass Weeds on the HORIZON HERBICIDE TANK MIX label listed as controlled at a rate of 0.23 L/ha HORIZON 240EC + 0.8 %v/v SCORE Adjuvant. Reduced control of grass weeds may be observed.
HORIZON NG**** Herbicide	0.93 L	Spring wheat Durum wheat	Broadleaf weed claims listed above as controlled by PULSAR Herbicide + Annual Grass Weeds on the HORIZON NG label listed as controlled at a rate of 0.93 L/ha. Reduced control of grass weeds may be observed.
HORIZON NG**** Herbicide + MCPA Ester (600 series)*	0.93 L + 0.578 L	Spring wheat Durum wheat	Broadleaf weed claims listed above as controlled by the PULSAR Herbicide and MCPA Ester tank-mix + Annual Grass Weeds on the HORIZON NG label listed as controlled at a rate of 0.93 L/ha. Reduced control of grass weeds may be observed.
TRAXOS <sup>®</sup> Herbicide****	1.2 L	Spring wheat Durum wheat	Broadleaf weed claims listed in Table 1 + Annual Grass Weeds on the TRAXOS label listed as controlled at a rate of 1.2 L/ha.

Herbicide Tank-Mix Partner	Rate/Ha of Tank-Mix Partner	Crops 2-5 leaf growth stage (BBCH) (12 - 15)	Weeds Controlled
TRAXOS Herbicide**** + MCPA Ester (600 series)*	1.2 L + 0.578 L	Spring wheat Durum wheat	Broadleaf weed claims listed above as controlled by the PULSAR Herbicide and MCPA Ester tank-mix + Annual grass weeds on the TRAXOS label listed as controlled at a rate of 1.2 L/ha. Reduced barnyard grass control may be observed

\* Avoid spray overlap as yield reduction may occur.

\*\* Flixweed susceptible only at seedling stage; top growth control only.

\*\*\* For tank mix partners, regions of use are restricted to regions specified on the most restrictive labels.

\*\*\*\* Do not use the tank mixes with HORIZON 240EC TANK MIX HERBICIDE, HORIZON NG or TRAXOS on barley.

### PREHARVEST/GRAZING INTERVALS

Do not harvest the treated crop within 60 days after application.

Do not graze cattle on treated crop, or harvest for silage until 7 days after the application of PULSAR Herbicide alone and at least 12 weeks following treatment with PULSAR Herbicide tank-mixes.

Withdraw meat animals from treated fields at least 3 days before slaughter.

### NOTES:

Do not tank mix with any other adjuvant, chemical additives, pesticides or fertilizers unless recommended on this label.

For optimum results, apply PULSAR Herbicide to actively growing weeds. An early application will maximize crop yields by reducing weed competition. Weeds emerging after application of PULSAR Herbicide will not be controlled.

Weed control following application of PULSAR Herbicide alone or in combination with tank mix partners, can be reduced or delayed under stress conditions such as drought, heat, insufficient fertility, flooding or prolonged cool temperatures. Optimum weed control will be obtained if application of PULSAR Herbicide is delayed until the stress conditions have ended and weeds are once again actively growing.

PULSAR Herbicide alone can be used one hour before rainfall.

Do not apply to crop that is stressed by conditions such as frost, low fertility, drought, flooding, disease or insect damage as crop injury may result.

### MIXING INSTRUCTIONS

1. Clean spray tank and half fill with clean water. Start agitation or bypass system.



2. Add correct amount of PULSAR Herbicide, and HORIZON 240EC Tank Mix Herbicide (if being used) and then add the correct amount of MCPA ESTER 600 Herbicide (if being used) and continue to agitate.
3. Agitate for 2-3 minutes.
4. Add correct amount of TRAXOS Herbicide (if being used) and HORIZON NG (if being used).
5. If tank mixing with HORIZON 240EC, add SCORE adjuvant.
6. Agitate additional 1 – 2 minutes.
7. After any break in spraying operations, agitate thoroughly before spraying again.
8. Use the spray suspension as soon as it is prepared.
9. Follow directions and precautions as outlined above, especially when applying next to sensitive crops (e.g., forages, legumes, and canola).
10. Follow sprayer clean-up directions.

### SPRAYING INSTRUCTIONS

1. DO NOT APPLY BY AIRCRAFT.
2. Water Volume: 110 litres per hectare.
3. Spray Nozzles: 80° or 110° flat fan nozzles are recommended for optimal spray coverage. Use 50 mesh nozzle screens. Do not use flood type nozzles, controlled droplet application equipment, spray foils or hollow cone nozzles.
4. Pressure: 275 - 310 kPa.
5. Apply uniformly at 6 - 8 km/hr and avoid overlapping. Shut off spray boom while starting, turning, slowing or stopping to prevent crop injury from an over application.

### SPRAYER CLEAN-UP

#### Clean Up Before Spraying:

- Prior to using PULSAR Herbicide, ensure that the spray tank, lines and filter are thoroughly clean.

#### Clean Up After Spraying:

- Thoroughly clean application equipment immediately after spraying. To avoid subsequent injury to other crops, immediately after spraying and before spraying other crops, thoroughly remove all traces of PULSAR Herbicide from mixing and spraying equipment.
- When using tank mixes, consult the tank-mix partner label for additional cleanup instructions.
- The following recommendations are provided:
  1. Drain and flush tank walls, boom and all hoses for ten minutes with a clean water/detergent mixture. Rinse with clean water. **Do not** clean the sprayer near desirable vegetation, wells or other water sources.
  2. Remove all nozzles and screens and wash separately.
  3. Dispose of all rinsate in accordance with provincial regulations.

All traces of PULSAR Herbicide must be removed before equipment can be used on crops other than Wheat and Barley.

## RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, PULSAR Herbicide is a Group 4 herbicide. Any weed population may contain or develop plants naturally resistant to PULSAR Herbicide and other Group 4 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

### **To delay herbicide resistance:**

Where possible, rotate the use of PULSAR Herbicide or other Group 4 herbicides with different herbicide groups that control the same weeds in a field.

Use tank mixtures with herbicides from a different group when such use is permitted.

Herbicide use should be based on an IPM program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.

Monitor treated weed populations for resistance development. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.

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

For further information or to report suspected resistance, contact company representatives at 1-877-964-3682 or at [www.syngenta.ca](http://www.syngenta.ca).

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