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**In Case of Emergency, Call  
1-800-327-8633 (FAST MED)**

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MSDS prepared by:  
Department of Regulatory & Biological Assessment  
Syngenta Canada Inc.

**For further information contact:**  
1-87-SYNGENTA (1-877-964-3682)

## SECTION – 1: PRODUCT IDENTIFICATION

**Product Identifier:** PULSAR® Herbicide  
**Registration Number:** 29450 (Pest Control Products Act)  
**Chemical Classes:** A mixture of herbicides.

Formulation No.: A15438B

**Active Ingredient (%):** Fluroxypyr-meptyl (15.3%)  
**Chemical Name:** 1-methylheptyl 2-[(4-amino-3,5-dichloro-6-fluoro-2-pyridinyl)oxy]acetate  
**Chemical Class:** Herbicide

CAS No.: 81406-37-3

**Active Ingredient (%):** Dicamba (8.3 %)  
**Chemical Name:** 3,6-Dichloro-o-anisic acid (present as diglycolamine salt)  
**Chemical Class:** Substituted Benzoic Acid Herbicide

CAS No.: 1918-00-9

**Product Use:** A water-based liquid post-emergence herbicide concentrate to be mixed with water and sprayed for control of broadleaf weeds. Please refer to product label for further details.

## SECTION – 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Dipropylene Glycol Methyl Ether	100 ppm TWA (skin)	100 ppm TWA; 150 ppm STEL (skin)	100 ppm; 150 ppm STEL**	No	Not Established
Petroleum Solvent	Not Established	Not Established	100 mg/m <sup>3</sup> (15 ppm)*	No	Not Established
Dicamba (8.1%)	Not Established	Not Established	Not Established	No	Not Established
Fluroxypyr-meptyl (15.3 %)	Not Established	Not Established	10 mg/m <sup>3</sup> TWA*	Not Established	Not Established

\* Recommended by Manufacturer

\*\* Recommended by NIOSH

† Material listed in Ingredient Disclosure List under Hazardous Products Act.

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.  
Syngenta Hazard Category: B, S

## SECTION – 3: HAZARDS IDENTIFICATION

### Symptoms of Acute Exposure

Irritating to eyes, skin and mucous membranes. Vapours may cause drowsiness and dizziness. May be harmful if swallowed and enters airway.

### **Hazardous Decomposition Products**

Can decompose at high temperatures and form toxic gases.

### **Physical Properties**

Appearance: Amber to dark brown liquid.

Odour: Paint-like odour.

### **Unusual Fire, Explosion and Reactivity Hazards**

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

### **Potential Health Effects**

**Relevant routes of exposure:** Skin, eyes, mouth, lungs.

## **SECTION – 4: FIRST AID MEASURES**

**IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital.** Have the product container, label or Material Safety Data Sheet with you when calling Syngenta, a poison control center or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [**1-800-327-8633 (1-800-FASTMED)**], for further information.

**EYE CONTACT:** Flush eyes with clean water, holding eyelids apart for a minimum of 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta, a poison control center or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

**SKIN CONTACT:** Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with plenty of water for 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

**INHALATION:** Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

**INGESTION:** If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Do not induce vomiting unless directed by a physician or a poison control center. Do not give **any** liquid to the person. Call Syngenta, a poison control centre or doctor for treatment advice.

#### **NOTES TO PHYSICIAN:**

There is no specific antidote if this product is ingested. Contains petroleum distillate - vomiting may cause aspiration pneumonia. Dicamba may cause mild irritation to the eyes, and irritation to the skin and mucous membranes. Symptoms of overexposure to dicamba may include dizziness, muscle weakness, loss of appetite, weight loss, vomiting, decreased heart rate, shortness of breath, excitement, tenseness, depression, incontinence, cyanosis, muscle spasms, exhaustion and loss of voice. Treat symptomatically.

**MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED:** Persons with allergy to dicamba or with a history of allergic sensitivity should use extra care when handling this product.

## **SECTION – 5: FIRE FIGHTING MEASURES**

**Flash point and method:** > 103 °C (Pensky-Martens CC)

**Upper and lower flammable (explosive) limits in air:** Not applicable.

**Auto-ignition temperature:** ~ 385 °C

**Flammability:** Not available.

**Hazardous combustion products:** During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

**Conditions under which flammability could occur:** Keep fire exposed containers cool by spraying with water.

**Extinguishing media:** Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist, (avoid use of water jet). Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the

area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

**Sensitivity to explosion by mechanical impact:** Not sensitive.

**Sensitivity to explosion by static discharge:** Not sensitive.

## SECTION – 6: ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices. A small spill can be handled routinely. Use adequate ventilation and wear equipment and clothing as described in Section 8 and/or the product label.

**Procedures for dealing with release or spill:** Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or sweep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory authority.

## SECTION – 7: HANDLING AND STORAGE

**Handling practices:** KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

**Appropriate storage practices/requirements:** Store in original container only in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

**National Fire Code classification:** Not required.

## SECTION – 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Applicable control measures, including engineering controls:** Ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV. Warehouses, production area, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

**THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.**

**CONSULT THE PRODUCT LABEL FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS.**

**Personal protective equipment for each exposure route:**

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

INGESTION: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

EYES: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

SKIN: Where contact is likely, wear chemical-resistant gloves (such as nitrile or butyl), coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

**INHALATION:** A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits. In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

## SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Amber to dark brown liquid.

**Formulation Type:** Emulsifiable concentrate.

**Odour:** Paint-like odour.

**pH:** 3.7 (1% dispersion in deionized water @ 25°C)

**Vapour pressure and reference temperature:**

Not Determined (Fluroxypyr 1-methylheptyl ester)

Not Available (Dicamba Diglycolamine Salt)

**Vapour density:** Not available.

**Boiling point:** Not available.

**Melting point:** Not available.

**Freezing point:** Not available.

**Specific gravity or density:** 1.07 g/cm<sup>3</sup>.

**Evaporation Rate:** Not available.

**Water/oil partition coefficient:** Fluroxypyr 1-methylheptyl ester: (Log Pow) is 3.79.  
Dicamba (Diglycolamine Salt): Not Available.

**Odour threshold:** Not available.

**Viscosity:** Not available.

**Solubility in Water:** 91 mg/L water @ 28°C (Fluroxypyr-meptyl)  
> 250 g/L @ 25 °C (Dicamba Technical)

## SECTION – 10: STABILITY AND REACTIVITY

**Chemical stability:** Stable at room temperature.

**Conditions to avoid:** None known.

**Incompatibility with other materials:** None known.

**Hazardous decomposition products:** Can decompose at high temperatures forming toxic gases.

**Hazardous polymerization:** Will not occur.

## SECTION – 11: TOXICOLOGICAL INFORMATION

### Acute toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Low Acute Toxicity</u>	
	Oral (LD <sub>50</sub> Female Rat):	> 5,000 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u>	
	Dermal (LD <sub>50</sub> Rat):	> 5,000 mg/kg body weight
Inhalation:	<u>Low Acute Toxicity</u>	
	Inhalation (LC <sub>50</sub> Rat):	> 2.52 mg/l air - 4 hours
Eye Contact:	<u>Moderately Irritating (Rabbit)</u>	
Skin Contact:	<u>Moderately Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

### Reproductive/Developmental Effects

Dicamba (Diglycolamine Salt): Not Available

Fluroxypyr 1-methylheptyl ester: In animal studies, has been shown not to interfere with reproduction. In-vitro and animal mutagenicity studies were negative. Teratology (Birth Defects): Birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

### Chronic/Subchronic Toxicity Studies

Dicamba (Diglycolamine Salt): Not Available  
Fluroxypyr 1-methylheptyl ester: Not Available

### Carcinogenicity

Dicamba (Diglycolamine Salt): Not Available  
Fluroxypyr 1-methylheptyl ester: Did not cause cancer in laboratory animals.

### Toxicity of Other Components

Dipropylene Glycol Methyl Ether:  
Irritating to eyes and upper respiratory tract in levels exceeding 300 ppm. Exposure may cause liver or kidney effects.

Petroleum Solvent:  
Slight eye irritant. Frequent or prolonged contact may cause skin irritation or dermatitis. High vapour/aerosol concentrations may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness and other CNS effects.

**Other materials that show synergistic toxic effects together with the product:** None known.

### Target Organs

#### Active Ingredient

Dicamba (Diglycolamine Salt): Not Available  
Fluroxypyr 1-methylheptyl ester: Not Applicable

#### Inert Ingredients

Dipropylene Glycol Methyl Ether: Eye, respiratory tract, liver, kidney  
Petroleum Solvent: Eye, respiratory tract, CNS

## SECTION – 12: ECOLOGICAL INFORMATION

### Summary of Effects

This is an herbicide that is mixed with water and applied as a spray for the control of broadleaf weeds. The active ingredients, dicamba and fluroxypyr, are practically non-toxic aquatic invertebrates (water flea), birds and slightly toxic to fish.

### Eco-Acute Toxicity

Dicamba (Diglycolamine Salt):	
Green Algae 5-Day EC <sub>50</sub>	> 3.7 ppm
Invertebrate (Water Flea) 48-hour EC <sub>50</sub>	> 11.37 ppm
Fish (Rainbow Trout) 96-hour LC <sub>50</sub>	135.4 mg/L
Bird (Mallard Duck) Oral LD <sub>50</sub>	216 ppm
Fluroxypyr 1-methylheptyl ester:	
Algae 96-hour EC <sub>50</sub>	> 100 ppm
Invertebrate (Water Flea) LC <sub>50</sub> /EC <sub>50</sub>	> 100 ppm
Fish (Rainbow Trout) 96-hour LC <sub>50</sub> /EC <sub>50</sub>	> 100 ppm
Bird (Oral - Mallard Duck) LD <sub>50</sub>	> 2,000 ppm

### **Environmental Fate**

The active ingredient, fluroxypyr-meptyl, has a low bioaccumulation potential and is not persistent in the environment. In soil and water, the half-life is < 10 days.

The active ingredient, dicamba acid, has a low bioaccumulation potential and is not persistent in the environment. In soil and water, the half-life is < 14 days. It is highly mobile in soil, but actual movement is limited by rapid degradation.

## **SECTION – 13: DISPOSAL CONSIDERATIONS**

**Waste disposal information:** Do not reuse empty containers unless they are specifically designed to be refillable. Empty container retains product residue. Triple rinse, or equivalent, empty container, return rinse water to dilution mixture, and dispose of dilution mixture as a hazardous waste if it cannot be disposed of by use according to label instructions. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents must accompany the shipment.

## **SECTION – 14 : TRANSPORT INFORMATION**

### **Shipping information such as shipping classification:**

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION - ROAD/RAIL

Not Regulated.

## **SECTION – 15: REGULATORY INFORMATION**

**WHMIS classification for product:** Exempt

This MSDS has been prepared in accordance with WHMIS requirements, but the data are presented under 16 headings.

Pest Control Products (PCP) Act Registration No.: 29450

## **SECTION – 16: OTHER INFORMATION**

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant MSDS. Hazardous properties of all ingredients have been considered in the preparation of this MSDS. Read the entire MSDS for the complete hazard evaluation of this product.

Prepared by: Syngenta Canada Inc.  
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