



## Epic Herbicide Safety Data Sheet

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{Reserved}

### 1. Identification

**Product Name:** Epic Herbicide

**PCP Registration No.:** pending

Refer to the approved product label for handling and use instructions.

**Product Type:** Herbicide

**Supplier:** Nufarm Agriculture Inc.  
5101, 333 - 96th Ave NE  
Calgary, Alberta T3K 0S3, Canada  
1-800-868-5444

**Telephone Numbers:** 24 Hour Emergency Response Number, Chemtrec, 1-800-424-9300.  
For medical emergencies, ProPharma Group, 1-877-325-1840.  
For product and use information, Nufarm Agriculture Inc.,  
1-800-868-5444.

### 2. Hazard Identification

Classified according to UN GHS Version 5.

**Physical Hazards:**

Combustible liquid – Class IIIA

**Health Hazards:**

Acute Toxicity (Inhalation) – Category 4

Skin irritation - Category 2

Eye irritation - Category 2B

Reproductive toxicity - Category 1B

Specific target organ toxicity - single exposure - Category 3

Specific target organ toxicity - single exposure - Category 2

Aspiration hazard - Category 1

**Signal Word:**

DANGER

**Hazard Statements:**

H304 – May be fatal if swallowed and enters airway.

H315 – Causes skin irritation.

H320 – Causes eye irritation.

H332 – Harmful if inhaled.

H335 – May cause respiratory irritation.

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H336 – May cause drowsiness or dizziness.

H360 – May damage fertility or the unborn child.

H373 – May cause damage to organs through prolonged or repeated exposure.



**Precautionary Statements:**

P201 – Obtain special instructions before use.

P202 – Do not handle until all safety precautions have been read and understood.

P260 – Do not breathe dust/fume/gas/mist/vapours/spray.

P264 – Wash thoroughly after handling.

P271 – Use only outdoors or in a well-ventilated area.

P280 – Wear protective gloves/protective clothing/eye protection/face protection.

**3. Composition / Information on Ingredients**

<b>Hazardous Components</b>	<b>CAS No.</b>	<b>Wt. %</b>
Pinoxaden	243973-20-8	5.05
Cloquintocet-mexyl	99607-70-2	1.26
Petroleum solvent	Trade secret	Trade secret
Tetrahydrofurfuryl alcohol	97-99-4	Trade secret

**4. First Aid Measures**

**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.

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

**Note to physician:** No specific antidote. Treat symptomatically. Contains petroleum distillates, vomiting may cause aspiration pneumonia.

**5. Fire-fighting Measures**

**Extinguishing Media:** Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist. Cool closed containers exposed to fire with water spray. Do not use a solid water stream as it may scatter and spread the fire.

**Special Firefighting Procedures:** Combustible liquid (Class IIIA). Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Wear full protective clothing and self-contained breathing apparatus. Evacuate non-essential 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 run-off can cause environmental damage. Contain run-off water with, for example, temporary earth barriers. Review the "Accidental Release Measures" and the "Ecological Information" sections of this SDS.

**Flash Point:** ..... 78.9°C

**Conditions of Flammability:** ..... Combustible liquid (Class IIIA)

**Hazardous Decomposition Products:** Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

**National Fire Protection Association (NFPA) Hazard Rating:**

**Rating for this product: Health: 2      Flammability: 3      Reactivity: 0**  
Hazards Scale: 0 = Minimal   1 = Slight   2 = Moderate   3 = Serious   4 = Severe

**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.

**7. Handling and Storage**

**Handling:** 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.

**Storage:** 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 35°C. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

## **8. Exposure Controls / Personal Protection**

**Engineering Controls:** If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels to a minimum. 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, applying cosmetics or using 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, wear chemical goggles or a full-face shield. 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. A combination gas/vapour/particulate respirator should be used until effective engineering controls are installed to comply with occupational exposure limits, or until exposure limits are established. Use a NIOSH certified respirator with a combination acid gas/organic vapour cartridge or canister and any N, P or R prefilter. Use a self-contained breathing apparatus in cases of emergency spills,

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when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

**Exposure Guidelines:**

Component	TWA*	STEL**	Reference/Note
Pinoxaden	<0.1 mg/m <sup>3</sup>	NE	
Cloquintocet-mexyl	5 mg/m <sup>3</sup>	NE	
Petroleum solvent	50 mg/m <sup>3</sup>	NE	
Tetrahydrofurfuryl alcohol	0.5 ppm	NE	

\*Time-weighted Average, 8-hour unless otherwise noted.

\*\*Short Term Exposure Limit

NE = Not Established

Refer to approved product label for additional exposure control guidance.

<b>9. Physical and Chemical Properties</b>
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<b>Appearance (physical state, colour, etc.)</b>	Yellow to orange clear liquid.
<b>Odour</b>	Aromatic
<b>Odour threshold</b>	not available
<b>pH</b>	3 - 7 (1% aqueous solution @ 25 °C)
<b>Melting point / Freezing point</b>	not available / < -10 °C.
<b>Initial boiling point and boiling range</b>	not available
<b>Flash point</b>	78.9°C
<b>Evaporation rate</b>	not available
<b>Flammability (solids, gases)</b>	Combustible liquid (Class IIIA).
<b>Upper / Lower flammability or explosive limits</b>	not available
<b>Vapour pressure</b>	Pinoxaden: 3.50 x 10 <sup>-9</sup> mmHg @ 20 °C. Cloquintocet-mexyl: 4.00 x 10 <sup>-8</sup> mmHg @ 20 °C.
<b>Vapour density</b>	not available
<b>Relative density</b>	1.01 – 1.05 g/cm <sup>3</sup> @ 20 °C.
<b>Solubility(ies)</b>	200 mg/L @ 25 °C (Pinoxaden Technical) in water
<b>Partition coefficient: n-octanol/water</b>	Pinoxaden: 3.2 Cloquintocet-mexyl: 5.2
<b>Autoignition temperature</b>	not available
<b>Decomposition temperature</b>	not available
<b>Viscosity (dynamic)</b>	8.3 mPa.s at 20 °C

<b>10. Stability and Reactivity</b>
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**Reactivity:** Not reactive.

**Chemical Stability:** Stable under normal handling and storage conditions.

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**Possibility of Hazardous Reactions:** Combustible liquid. Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back.

**Conditions to Avoid:** Hot surfaces, open flames, sparks.

**Incompatible Materials:** No substances are known which lead to the formation of hazardous substances or thermal reactions.

**Hazardous Decomposition Products:** Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

## 11. Toxicological Information

**Likely Routes of Exposure:** Inhalation, Skin contact, Oral

**Eye Contact:** Causes eye irritation.

**Skin Contact:** Causes skin irritation.

**Ingestion:** May be fatal if swallowed and enters airway.

**Inhalation:** Harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness.

**Acute Toxicity/Irritation Studies (Finished Product):**

Ingestion: Low Acute Toxicity Oral (LD50 Rat) > 5,000 mg/kg body weight

Dermal: Low Acute Toxicity Dermal (LD50 Rat) > 5,000 mg/kg body weight

Inhalation: Low Acute Toxicity Inhalation (LC50 Rat) > 2.53 mg/L air – 4 hours

Eye Contact: Mildly Irritating (Rabbit)

Skin Contact: Severely Irritating (Rabbit)

Skin Sensitization: Not a Sensitizer (Guinea Pig)

**Subchronic (Target Organ) Effects:**

Pinoxaden: Based on human evidence: may cause respiratory irritation, breathing difficulties, cough, acute irritation of the respiratory system leading to tightness of the chest and an asthmatic condition.

Cloquintocet-mexyl: Not classified as a specific target organ toxicant, single exposure.

**Carcinogenicity / Chronic Health Effects:**

Pinoxaden: Did not show carcinogenic effects in animal experiments. No adverse effect has been observed in chronic toxicity tests.

Cloquintocet-mexyl: Did not show carcinogenic effects in animal experiments. Classified as a specific target organ toxicant, repeated exposure, category 2.

**Reproductive Toxicity:**

Pinoxaden: Did not show reproductive toxicity effects in animal experiments.

Cloquintocet-mexyl: Did not show reproductive toxicity effects in animal experiments.

**Developmental Toxicity:** Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

**Genotoxicity:**

Pinoxaden: Did not show mutagenic effects in animal experiments.

Cloquintocet-mexyl: Did not show mutagenic effects in animal experiments.

**Toxicity of Other Components:**

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The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the “other components” in the formulation.

Petroleum solvent: Repeated exposure may cause skin dryness or cracking. If swallowed, may be aspirated and cause lung damage. May be irritating to the eyes, nose, throat and lungs. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light headedness, headache, nausea and loss of coordination.

Tetrahydrofurfuryl alcohol: May be harmful if swallowed. Causes respiratory tract irritation. May cause digestive tract irritation. Causes severe eye irritation. Inhalation overexposure may cause dizziness, incoordination and unconsciousness. Chronic overexposure may affect the kidney.

## 12. Ecological Information

### Eco-Acute Toxicity:

Pinoxaden:

Invertebrates (Water Flea) 48-hour LC50/EC50 52 ppm

Fish (Rainbow Trout) 96-hour LC50/EC50 10.3 ppm

Birds (8-day dietary – Bobwhite Quail) LC50 > 5,790 ppm

Cloquintocet-mexyl:

Invertebrates (Water Flea) 48-hour LC50/EC50 > 0.82 ppm

Fish (Rainbow Trout) 96-hour LC50/EC50 > 0.97 ppm

Birds (14-day – Bobwhite Quail) LC50 > 2,000 ppm

### Persistence & Degradability:

Pinoxaden: Low persistence in soil. Low persistence in water.

Cloquintocet-mexyl: Low persistence in soil. Low persistence in water.

### Bioaccumulation Potential:

Pinoxaden: BCF < 500; does not bioaccumulate.

Cloquintocet-mexyl: BCF < 500; does not bioaccumulate.

### Mobility in Soil:

Pinoxaden: Low mobility in soil.

Cloquintocet-mexyl: Low mobility in soil.

**Other Adverse Effects:** Not applicable.

### Environmental Fate:

The active ingredient, pinoxaden, has a low bioaccumulation potential, low mobility, and low persistence in soil and water.

## 13. Disposal Considerations

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Disposal should be made in accordance with federal, provincial and local regulations.

Do not reuse container for any purpose. If applicable, return container in accordance with return program. If a recyclable container, dispose of at a container collection site. Contact local distributor, dealer or municipality for the location of the nearest collection site. Before taking





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This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use. The product labeling provides that information specifically for product use as intended.

Company and published information is used in the development of this SDS. The information herein is presented in good faith and believed accurate at the date of publication. However, no warranty, expressed or implied, is given.

Revisions to the last issue: New

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