Conquer Herbicide
Safety Data Sheet

Issue Date: 2017-05-17 Supersedes Date: 2017-02-17 {Reserved}

1. Identification

Product Name: **Conquer Herbicide**
PCP Registration No.: **32528**
Refer to the approved product label for handling and use instructions.
Product Type: **Herbicide**

Supplier:
Nufarm Agriculture Inc.
Suite 350, 2618 Hopewell Place NE
Calgary, Alberta, T1Y 7J7, 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:

Flammable liquid	Category 4

Health Hazards:

Acute toxicity (Oral)	Category 3
Acute toxicity (Dermal)	Category 5
Acute toxicity (Inhalation)	Category 4
Skin sensitizer	Category 1B

Environmental Hazards:

Hazardous to aquatic environment, acute	Category 1

Signal Word:
DANGER

Hazard Statements:
Combustible liquid. Toxic if swallowed. May be harmful in contact with skin. Harmful if inhaled. May cause an allergic skin reaction. Very toxic to aquatic life.


Precautionary Statements:
Keep away from flames and hot surfaces.
Avoid contact with skin, eyes and clothing. Wear goggles or face shield during mixing/loading. Wear coveralls over a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. After use, wash hands and other exposed skin. Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Toxic if swallowed.
This product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms.

3. Composition / Information on Ingredients

Hazardous Components	CAS No.	Wt. %
Bromoxynil octanoate	1689-99-2	56-60
Chemical Synonyms: 2,6-dibromo-4-cyanophenyl octanoate		
Solvent naphtha (petroleum), heavy aromatic, naphthalene depleted	64742-94-5	27-29
1-methyl-2-pyrrolidinone	872-50-4	2.4-2.6
Chemical Synonyms: NMP; *N*-Methylpyrrolidone; *N*-Methylpyrrolidinone		
Pyraflufen-ethyl	129630-19-9	1.2-1.3
Chemical Synonyms: ethyl [2-chloro-5-(4-chloro-5-difluoromethoxy-1-methylpyrazol-3-yl)-4-fluorophenoxy]acetate; ethyl 2-[2-chloro-5-[4-chloro-5-(difluoromethoxy)-1-methyl-1*H*-pyrazol-3-yl]-4-fluorophenoxy]acetate		

Other ingredients are considered non-hazardous.

Content as Expressed on Product Label
Bromoxynil, present as octanoate ester … 467 g/L
Pyraflufen-ethyl … 15 g/L

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.

5. Fire-fighting Measures

Extinguishing Media: Water fog, alcohol foam, carbon dioxide, dry chemical.
Special Firefighting Procedures: Firefighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Minimize and contain water runoff.
Flash Point:..... 72.2 C
Conditions of Flammability: ..... Combustible liquid. May burn under fire conditions.
Hazardous Decomposition Products: ... Under fire conditions, may produce gases such as hydrogen bromide or other bromine compounds, hydrogen chloride, nitrogen oxides and carbon oxides.
National Fire Protection Association (NFPA) Hazard Rating:

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

6. Accidental Release Measures

Use safety equipment and procedures appropriate to the size of the spill. Keep unnecessary people away. Avoid runoff to natural waters and sewers. Surround and absorb spills with inert material such as perlite, sawdust, clay granules, vermiculite, sand or dirt. Contain all affected material in a closed, labeled container for proper disposal. Isolate from other waste materials. Clean contaminated area such as hard surfaces with detergent and water, collecting cleaning solution for proper disposal. Large spills to soil or similar surfaces may necessitate removal of top soil.

7. Handling and Storage

Handling: Avoid contact with skin, eyes and clothing. Wear goggles or face shield during mixing/loading. Wash concentrate from skin or eyes immediately. After use, wash hands and other exposed skin. Wear coveralls over a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. Remove and wash contaminated clothing before reuse.
Storage: Store the container tightly closed away from seeds, fertilizer, plants and foodstuffs. Storage below 0C will not impair the effectiveness of the product, however, if frozen, return to original state by allowing product to warm to 10 - 20C and agitate thoroughly before use.

8. Exposure Controls / Personal Protection

Engineering Controls: Use only outdoors or in a well-ventilated area.
Personal Protective Equipment: Goggles or face shield, coveralls, long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal.
Exposure Guidelines:

Component	TWA*	STEL**	Reference/Note
Bromoxynil octanoate	0.21 mg/m^3	NE	Supplier recommendation
Solvent naphtha (petroleum), heavy aromatic, naphthalene depleted	50 mg/m^3	NE	Supplier recommendation
1-methyl-2-pyrrolidinone	10 ppm	NE	AIHA recommendation
Pyraflufen-ethyl	NE	NE	None found

*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.

9. Physical and Chemical Properties

NOTE: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification. If no value is determined for the formulation, the value listed is the most relevant value of the predominant ingredient(s).

Appearance (physical state, colour, etc.) ..... clear, light amber liquid
Odour ..... hydrocarbon-like
Odour threshold ..... not available
pH ..... 4.17 (1% w/w dilution)
Melting point / Freezing point ..... not available
Initial boiling point and boiling range ..... >185C (bromoxynil octanoate)
Flash point 72.2C
Evaporation rate ..... not available
Flammability (solids, gases) ..... not applicable
Upper / Lower flammability or explosive limits ... LEL = 0.7, UEL = 5.6 vol. % in air (solvent)
Vapour pressure ..... 4.0 Pa @ 20C (solvent)
$< 10^{-7}$ Pa @ 25C (bromoxynil octanoate)
Vapour density ..... 5.6 @ 101 kPa (air = 1) (solvent)
Relative density ..... 1.229 @ 20C
Solubility(ies) ..... negligible in water, emulsifiable
highly soluble in organic solvents (bromoxynil octanoate)
Partition coefficient: n-octanol/water ..... logP = 5.9 @ pH 7, 25C (bromoxynil octanoate)
Autoignition temperature ..... not available
Decomposition temperature ..... >180C (bromoxynil octanoate)
Viscosity (kinematic)..... 36.8 cSt @ 20C

10. Stability and Reactivity

Reactivity: Not reactive.
Chemical Stability: Stable under normal handling and storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.
Conditions to Avoid: Excessive heat. Do not store near heat or flame.
Incompatible Materials: Avoid contact with strong acidic, basic or oxidizing agents.
Hazardous Decomposition Products: Under fire conditions, may produce gases such as hydrogen bromide or other bromine compounds, hydrogen chloride, nitrogen oxides and carbon oxides.

11. Toxicological Information

Likely routes of exposure: Inhalation, ingestion, skin and eye contact.
Eye contact: Causes mild eye irritation. Causes redness and tearing.
Skin contact: May be harmful if absorbed through skin. Causes mild skin irritation. May cause an allergic skin reaction.
Ingestion: Toxic if swallowed. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation, weakness, central nervous system depression, unconsciousness, respiratory failure, or in extreme cases, death.
Inhalation: Harmful if inhaled. Vapours could cause coughing, burning, headache, dizziness, respiratory irritation and symptoms similar to those from ingestion.
Medical Conditions Aggravated by Exposure: Skin exposure may aggravate preexisting skin conditions. Inhalation of mist may aggravate preexisting respiratory conditions.
Toxicological Data:

Acute oral LD_{50} (mg/kg) ..... > 50, < 300 (Rat, female)
Acute dermal LD_{50} (mg/kg) ..... > 2000 (Rat, male & female)
Acute inhalation LC_{50} (mg/l) ..... > 2.09 mg/L (Rat, male & female, 4-hour, nose-only exp.)
Skin corrosion/irritation ..... Slightly irritating to the skin (Rabbit)
Serious eye damage/irritation ..... Mildly irritating to the eye (Rabbit)
Respiratory or skin sensitization ... Potential skin sensitizer (Mouse)
Germ cell mutagenicity ..... The weight of evidence is that bromoxynil is not mutagenic. Products similar to the hydrocarbon component are not considered to be mutagenic. Pyraflufen-ethyl has not demonstrated genotoxic potential in *in vitro* and *in vivo* assays.
Carcinogenicity ..... Bromoxynil phenol has been classified by U.S. EPA in Group C, possible human carcinogen. Products similar to the hydrocarbon component are not considered to be mutagenic and are unlikely to cause tumors. Pyraflufen-ethyl did not demonstrate oncogenicity in rats, but there were equivocal findings in mice. Relevance to humans is not known.
Reproductive toxicity ..... Animal reproduction studies with bromoxynil phenol, bromoxynil octanoate and pyraflufen-ethyl indicate there is no increased sensitivity of the young relative to maternal animals.

12. Ecological Information

Ecotoxicity:
Data are from laboratory studies conducted on bromoxynil octanoate technical.
Aquatic Invertebrate: 48-Hour EC_{50} (mg/L) ..... 0.46 (*Daphnia*)

Fish: 96-Hour LC_{50} (mg/L) ..... 0.041 (Rainbow Trout), 0.06 (Bluegill Sunfish)
Algae: 120-Hour EC_{50} (mg/L) .... 0.22 (*Selenastrum*), 0.043 (*Navicula*)
Birds: Oral LD_{50} (mg/kg) ..... 170 (Bobwhite), 2350 (Mallard); 5-d Dietary LC_{50} (ppm) 1315 (Bobwhite), 2150 (Mallard)
Bees: LD_{50} ..... >100 µg/bee (48 h contact), >119.8 µg/bee (96 h oral)

Data are from laboratory studies conducted on pyraflufen-ethyl technical.
Aquatic Invertebrate: 48-Hour EC_{50} (mg/L) ..... > 0.082 (*Daphnia*)
Fish: 96-Hour LC_{50} (mg ae/L) .... > 0.1 (Rainbow Trt), > 0.085 (Bluegill), > 0.056 (Sheepshead)
Algae: EC_{50} (mg/L) ..... 0.00031 (*Selenastrum*), 0.0016 (*Navicula)*
Birds: Oral LD_{50} (mg/kg) ..... > 2000 (Bobwhite), Dietary LC_{50} > 5000 (Mallard, Bobwhite)
Bees: Oral and Contact LD_{50} ..... > 112 µg/bee (oral), > 100 µg/bee (contact)

Persistence and Degradability: Bromoxynil octanoate degrades readily to bromoxynil phenol by abiotic hydrolysis, photolytic degradation, and microbially-mediated metabolism, in both aerobic and anaerobic environments. Representative soil half-lives are 2 days for the octanoate and 14 days for the phenol. Pyraflufen-ethyl dissipates quickly by biotransformation in both soil and water, having a half-life of less than one day. Some transformation products of pyraflufen-ethyl are persistent.
Mobility in Soil: Bromoxynil has moderate to high mobility potential, but is rapidly degraded. Transformation products of pyraflufen-ethyl are immobile.
Bioaccumulation Potential: Bromoxynil octanoate can bioaccumulate, but will depurate. Pyraflufen-ethyl has negligible bioaccumulation potential.

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 the container to the collection site, triple or pressure rinse the empty container adding rinsings to spray tank, and make container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

14. Transport Information

Canadian TDG Description (Road & Rail):
UN2902, Pesticide, liquid, toxic, n.o.s.,
(bromoxynil, pyraflufen-ethyl), 6.1, III, Marine pollutant

United States DOT Description:
UN2902, Pesticide, liquid, toxic, n.o.s.,
(bromoxynil, pyraflufen-ethyl), 6.1, III, Marine pollutant

15. Regulatory Information

Pest Control Products Act Registration Number: 32528

This product is regulated under the *Pest Control Products Act* (PCPA). Some classifications on this SDS may differ from the PCPA registered label. Refer to the approved product label for handling and use instructions.
WHMIS exempt.

16. Other Information

This Safety Data Sheet (SDS) is designed to comply with the Globally Harmonized System (GHS) of classification, and the *Hazardous Products Regulations*.

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: Revised to GHS format.

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