Conquer™ Herbicide Tank Mix

- Aim® EC Herbicide (PCP No 28573)
- Koril® 235 Liquid Herbicide (PCP No 25341)
Material Safety Data Sheet
AIM® EC HERBICIDE

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: AIM® EC HERBICIDE
Formula code: 6165
Active Ingredient(s): Carfentrazone-ethyl
Synonyms:
- FMC 116426: ethyl (RS)-2-chloro-3-[2-chloro-5- (4-difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl) -4-(fluorophenyl) propionate; ethyl
- α,2-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]-4-fluorobenzenepropanoate

Chemical Family: Triazolinones
Recommended use: Herbicide

Manufacturer: FMC Corporation
Agricultural Products Group
1735 Market Street
Philadelphia, PA 19103
General Information:
Phone: (215) 299-6000
E-Mail: msdsinfo@fmc.com

Emergency telephone number:
Medical Emergencies:
(800) 331-3148 (U.S.A. & Canada)
+1 (651) 632-6793 (All Other Countries - Collect)
For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)

2. Hazards identification

Appearance: brown orange liquid
Physical state: Liquid
Odor: aromatic

Potential health effects:
Principle Routes of Exposure: Eye contact, Skin contact, Inhalation, Ingestion.
Acute effects:
- Eyes: May cause slight irritation.
- Skin: Substance may cause slight skin irritation.
- Inhalation: May cause irritation of respiratory tract. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.
- Ingestion: Potential for aspiration if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause central nervous system depression.
AIM® EC HERBICIDE

Chronic effects
Efforts are expected to be similar to those that are seen with acute toxicity. Chronic exposure to aromatic hydrocarbons may cause headaches, dizziness, loss of sensations or feelings (such as numbness), and liver and kidney damage. Naphthalene causes cataracts in humans, rats, rabbits and mice. It has been classified as potential carcinogen based on animal data.

3. Composition/information on ingredients

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha (petroleum), heavy aromatic</td>
<td>64742-94-5</td>
<td>60-70</td>
</tr>
<tr>
<td>Carfentrazone-ethyl</td>
<td>128639-02-1</td>
<td>22.37</td>
</tr>
<tr>
<td>2-Methylnaphthalene</td>
<td>91-57-6</td>
<td>&lt;18</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>&lt;10</td>
</tr>
<tr>
<td>1-Methylnaphthalene</td>
<td>90-12-0</td>
<td>&lt;9</td>
</tr>
<tr>
<td>Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts</td>
<td>68953-96-8</td>
<td>1-5</td>
</tr>
</tbody>
</table>

4. First aid measures

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

Skin contact
Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Inhalation
Move person to fresh air. If person is not breathing, call 911 (within the U.S. and Canada) or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Ingestion
Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not induce vomiting or give anything by mouth to an unconscious person.

Notes to physician
Treatment is symptomatic and supportive. Contains petroleum distillate. Vomiting may cause aspiration pneumonia.

5. Fire-fighting measures

Flash Point Method
79.9 °C / 176 °F
closed cup

Sensitivity to Mechanical Impact
not applicable

Sensitivity to Static Discharge
not applicable

Suitable extinguishing media
Carbon dioxide (CO₂), Foam, Dry powder, Water spray.

Protective equipment and precautions for firefighters
Wear self-contained breathing apparatus and protective suit.

NFPA
Health Hazard 1
Flammability 2
Stability 0
Special Hazards -

6. Accidental release measures
Personal precautions
Isolate and post spill area. Remove all sources of ignition. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.

Environmental precautions
Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains.

Methods for containment
Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up
Clean and neutralize spill area, tools and equipment by washing with bleach water and soap. Absorb rinsate and add to the collected waste. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13.

Other
For further clean-up instructions call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.

7. Handling and storage
Handling
Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

Storage
Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of reach of children and animals. Store in original container only.

8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methylnaphthalene 91-57-6</td>
<td>S* TWA: 0.5 ppm</td>
<td>TWA: 10 ppm TWA: 50 mg/m³</td>
<td>IDLH: 250 ppm</td>
<td></td>
</tr>
<tr>
<td>Naphthalene 91-20-3</td>
<td>S* STEL: 15 ppm TWA: 10 ppm</td>
<td>TWA: 10 ppm TWA: 50 mg/m³</td>
<td>TWA: 10 ppm TWA: 50 mg/m³</td>
<td></td>
</tr>
<tr>
<td>STEL: 15 ppm TWA: 10 ppm</td>
<td></td>
<td></td>
<td>STEL: 15 ppm STEL: 75 mg/m³</td>
<td></td>
</tr>
<tr>
<td>1-Methylnaphthalene 90-12-0</td>
<td>S* TWA: 0.5 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>British Columbia</th>
<th>Quebec</th>
<th>Ontario TWAEV</th>
<th>Alberta</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methylnaphthalene 91-57-6</td>
<td>TWA: 0.5 ppm</td>
<td>TWA: 0.5 ppm</td>
<td>TWA: 10 ppm TWA: 50 mg/m³</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
</tr>
<tr>
<td>Skin</td>
<td></td>
<td>Skin</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
</tr>
<tr>
<td>Naphthalene 91-20-3</td>
<td>TWA: 10 ppm STEL: 15 ppm</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
<td>TWA: 10 ppm STEL: 15 ppm</td>
<td></td>
</tr>
<tr>
<td>STEL: 15 ppm TWA: 10 ppm</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
<td></td>
</tr>
<tr>
<td>STEL: 79 mg/m³</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
<td></td>
</tr>
<tr>
<td>1-Methylnaphthalene 90-12-0</td>
<td>TWA: 0.5 ppm</td>
<td>TWA: 0.5 ppm</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
</tr>
<tr>
<td>Skin</td>
<td></td>
<td>Skin</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
<td>TWA: 10 ppm TWA: 52 mg/m³</td>
</tr>
</tbody>
</table>

Occupational exposure controls

Engineering measures
Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Personal Protective Equipment

General Information
If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.

Respiratory protection
For dust, splash, mist or spray exposures wear a filtering mask.

Eye/face protection
For dust, splash, mist or spray exposure, wear chemical protective goggles or a face-shield.
AIM® EC HERBICIDE

Skin and body protection
Wear long-sleeved shirt, long pants, socks, shoes, and gloves.

Hand protection
Protective gloves

Hygiene measures
Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>brown orange liquid</td>
</tr>
<tr>
<td>Color</td>
<td>brown orange</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>aromatic</td>
</tr>
<tr>
<td>pH</td>
<td>5.3 (1% solution)</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No information available.</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No information available.</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>not applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>79.9 °C / 176 °F closed cup</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Density</td>
<td>9.0 lb/gal</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.08</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No information available.</td>
</tr>
<tr>
<td>Percent volatile</td>
<td>No information available.</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

9.2 Other information

10. Stability and reactivity

Stability
Stable under recommended storage conditions.

Conditions to avoid
Heat, flames and sparks

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Carbon oxides, Hydrogen chloride, Hydrogen fluoride, nitrogen oxides (NOx), Sulfur oxides.

Hazardous polymerization
Hazardous polymerization does not occur.

11. Toxicological information

Acute Toxicity
Signs of toxicity in laboratory animals included mydriasis, cyanosis, ataxia, dyspnea, lacrimation, and diarrhea.

Eye contact
Minimally irritating.

Skin contact
Slightly or non-irritating (rabbit).
AIM® EC HERBICIDE

Ingestion
Potential for aspiration if swallowed. Vomiting after ingestion of this product may cause aspiration of aromatic hydrocarbons into the lungs, which may result in fatal pulmonary edema. Naphthalene, if ingested, may cause red blood cell hemolysis, especially in individuals with glucose-6-phosphate dehydrogenase deficiency.

Inhalation
Inhalation of aromatic hydrocarbon vapors may cause dizziness, disturbances in vision, drowsiness, respiratory irritation, and eye, skin and mucous membrane irritation.

LD50 Dermal
> 4000 mg/kg (rat)
LD50 Oral
4077 mg/kg (rat)
LC50 Inhalation:
> 6.31 mg/L (4-hr) (rat)

Chronic Toxicity - Other Ingredient(s)

Chronic Toxicity
Effects are expected to be similar to those that are seen with acute toxicity. Chronic exposure to aromatic hydrocarbons may cause headaches, dizziness, loss of sensations or feelings (such as numbness), and liver and kidney damage. Naphthalene causes cataracts in humans, rats, rabbits and mice. It has been classified as potential carcinogen based on animal data.

Carcinogenicity
Carfentrazone-ethyl: Did not show carcinogenic effects in animal experiments. Not recognized as carcinogenic by Research Agencies (IARC, NTP, OSHA, ACGIH). There was no evidence of carcinogenic activity of naphthalene in male mice, but there was some evidence of carcinogenic activity in female mice and clear evidence of carcinogenic activity in male and female rats in 2-year inhalation studies conducted by the National Toxicology Program (NTP).

Mutagenicity
Carfentrazone-ethyl: Not genotoxic.

Reproductive toxicity
Carfentrazone-ethyl: No toxicity to reproduction.

Developmental Toxicity
Carfentrazone-ethyl: Not teratogenic in animal studies.

Target Organ Effects
Carfentrazone-ethyl: Red blood cell reduction can occur due to hemoglobin biosynthesis inhibition. Accumulation of precursors of hemoglobin may lead to secondary toxicity to liver and other organs.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
<th>NIOSH - Target Organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>2B</td>
<td></td>
<td>Reasonably Anticipated</td>
<td>X</td>
<td>eyes, blood, liver, kidney, skin, CNS</td>
</tr>
</tbody>
</table>

Legend:
IARC: (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
OSHA: (Occupational Safety & Health Administration)
X - Present

12. Ecological information

Ecotoxicity
Carfentrazone-ethyl (128639-02-1)

<table>
<thead>
<tr>
<th>Active Ingredient(s)</th>
<th>Duration</th>
<th>Species</th>
<th>Value</th>
<th>Units:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carfentrazone-ethyl</td>
<td>120 h LC50</td>
<td>Algae</td>
<td>5.7 - 17</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>96 h LC50</td>
<td>Fish</td>
<td>1.6 - 2.0</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>48 h LC50</td>
<td>Daphnia</td>
<td>&gt;9.8</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Bobwhite quail</td>
<td>&gt;2250</td>
<td>mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to microorganisms</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
</table>

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Waste disposal methods
Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance.

Contaminated packaging
Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions.

14. Transport information

DOT
This material is a Combustible liquid and is, therefore, not subject to the hazardous materials regulations when in non-bulk packages shipped within the USA per 49 CFR §173.150(f)(2).

<table>
<thead>
<tr>
<th>Packaging Type</th>
<th>UN/ID No</th>
<th>Hazard Class</th>
<th>Packing group</th>
<th>Reportable Quantity (RQ)</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk</td>
<td>NA1993</td>
<td>3</td>
<td>III</td>
<td>Naphthalene</td>
<td>Naphthalène est un &quot;RQ&quot; quantité lorsque ce matériau est 100 livres (45,4 kg) ou plus par paquet.</td>
</tr>
</tbody>
</table>

TDG
Classification below is only applicable when shipped by vessel and is not applicable when shipped by road or rail only.

<table>
<thead>
<tr>
<th>UN/ID No</th>
<th>Hazard Class</th>
<th>Packing group</th>
<th>Marine pollutant</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN3082</td>
<td>9</td>
<td>III</td>
<td>Carfentrazone-ethyl</td>
</tr>
</tbody>
</table>
### ICAO/IATA

<table>
<thead>
<tr>
<th>UN/ID No</th>
<th>UN3082</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Class</td>
<td>9</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Carfentrazone-ethyl</td>
</tr>
</tbody>
</table>

### IMDG/IMO

<table>
<thead>
<tr>
<th>UN/ID No</th>
<th>UN3082</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Class</td>
<td>9</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>EmS No.</td>
<td>F-A, S-F</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Carfentrazone-ethyl</td>
</tr>
</tbody>
</table>
15. Regulatory information

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>&lt;10</td>
<td>0.1</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories

- Acute Health Hazard: yes
- Chronic Health Hazard: yes
- Fire Hazard: no
- Sudden Release of Pressure Hazard: no
- Reactive Hazard: no

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>Extremely Hazardous Substances RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>100 lb</td>
<td></td>
</tr>
</tbody>
</table>

TSCA Inventory (United States of America)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>U.S. - TSCA (Toxic Substances Control Act) - Section 4 - Chemical Test Rules (40 CFR 799)</th>
<th>U.S. - TSCA (Toxic Substances Control Act) - Section 5(a)(2) - Chemicals with Significant New Use Rules (SNURs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>40 CFR 799.5115</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>U.S. - TSCA (Toxic Substances Control Act) - Section 8(a) - Chemical-Specific Reporting and Recordkeeping</th>
<th>U.S. - TSCA (Toxic Substances Control Act) - Section 8(d) - 716.120(a) - Health and Safety Reporting - List of Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>PAIR: 08/04/1995</td>
<td>06/01/1987</td>
</tr>
</tbody>
</table>

International Regulations

Mexico - Grade
Moderate risk, Grade 2

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
- B3 Combustible liquid
- D2A Very toxic materials
### 16. Other information

<table>
<thead>
<tr>
<th>Revision Date:</th>
<th>2012-04-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reason for revision:</td>
<td>(M)SDS sections updated.</td>
</tr>
</tbody>
</table>

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**Prepared By**

FMC Corporation

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*End of Material Safety Data Sheet*
NUFARM AGRICULTURE INC.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SUPPLIED BY: Nufarm Agriculture Inc.
MANUFACTURED BY: Nufarm Agriculture Inc.
5507 1st Street, SE
5507 1st Street, SE
Calgary, AB T2H 1H9
Calgary, AB T2H 1H9
Phone Number: (403)-253-8471
Phone Number: (403)-253-8471
Fax Number: (403)-253-8478
Fax Number: (403)-253-8478

PRODUCT: Koril® 235 Emulsifiable Herbicide
PCP NUMBER: 25341
DATE PREPARED: November 26, 2013
PREPARER: Nufarm Agriculture Inc.; Regulatory Affairs & Research Department
CHEMICAL FAMILY/USE: Herbicide.
FORMULA: \( C_{15}H_{17}Br_2NO_2 \)
CHEMICAL SYNONYMS: Bromoxynil octanoate ester; 3,5-dibromo-4-hydroxybenzonitrile, octanoate ester; octanoic acid ester of bromoxynil; 2,6-dibromo-4-cyanophenyl octanoate

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Ingredients</th>
<th>Wt. %</th>
<th>CAS NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromoxynil octanoate ester</td>
<td>30-35</td>
<td>1689-99-2</td>
</tr>
<tr>
<td>Aromatic hydrocarbon solvent</td>
<td>50-60</td>
<td>64742-94-5</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>&lt; 1</td>
<td>91-20-3</td>
</tr>
<tr>
<td>Emulsifiers and other proprietary ingredients</td>
<td>5-15</td>
<td>NA</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: WARNING-POISON. Keep out of reach of children. Combustible. Do not get into eyes, on skin, or on clothing. Do not inhale spray mist (e.g., during herbicide application). Eye and skin irritant. Potential skin sensitizer.

EFFECTS OF ACUTE EXPOSURE:

INGESTION: Harmful if swallowed. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation, weakness, central nervous system depression, unconsciousness, respiratory failure, or in extreme cases, death. Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.

SKIN CONTACT: Causes severe skin irritation. Harmful if absorbed through the skin. Overexposure by skin absorption may cause symptoms similar to those for ingestion. May cause allergic reaction in sensitive individuals.

INHALATION: Low to moderate inhalation toxicity based on laboratory animal testing of a similar formulation as a mist. Inhalation toxicity by vapour is unlikely under normal conditions, however, high concentrations of vapours from undiluted product may cause headache, dizziness, respiratory tract irritation and symptoms similar to those from ingestion.

EYE CONTACT: Causes severe eye irritation.

MEDICAL CONDITIONS AGGRAVATED: Skin exposure may aggravate preexisting skin conditions. Inhalation of spray mist may aggravate preexisting respiratory conditions.

SUBCHRONIC (TARGET ORGAN) EFFECTS: (An adverse effect with symptoms that develop slowly over a long period of time): Repeated overexposure may cause chronic dermatitis, reproductive and developmental effects. See below.

CHRONIC EFFECTS/CARCINOGENICITY: Bromoxynil phenol has been classified by U.S. EPA in Group C, limited evidence of carcinogenicity in animals. A minor ingredient in this product, naphthalene, has been reported by the U.S. National Toxicology
NUFARM AGRICULTURE INC.

Program to be associated with increased nose/lung tumors in laboratory animals via inhalation exposure.

**REPRODUCTIVE TOXICITY:** Animal studies on bromoxynil phenol did not indicate a pattern of reproductive toxicity, but a study on bromoxynil octanoate indicated possible mild male reproductive toxicity at high doses.

**DEVELOPMENTAL TOXICITY:** Based on the results of studies in laboratory animals, bromoxynil phenol is considered to be a developmental toxicant. Women of childbearing age should avoid excessive exposure.

**GENOTOXICITY:** There have been some positive and some negative studies, but the weight of evidence is that bromoxynil is not mutagenic.

**PRINCIPLE ROUTES OF EXPOSURE:** Eye contact. Skin absorption. Inhalation. Oral.

**TOXICOLOGICALLY SYNERGISTIC MATERIALS:** None known.

**OTHER:** None known.

### 4. FIRST AID MEASURES

Remove person from contaminated area, remove contaminated clothing. Keep patient warm, comfortable, at rest.

**In case of Ingestion:** 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.

**In case of Eye Contact:** 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 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.

**In case of Inhalation:** 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:** This product contains petroleum distillates. If large amounts have been ingested, empty the stomach by gastric intubation with the aid of a cuffed endotracheal tube to prevent aspiration and possible chemical pneumonia. No specific antidote. Treatment based on sound judgment of physician and individual reactions of patient. Overexposure to materials other than this product may have occurred.

### 5. FIRE FIGHTING MEASURES

**FLASH POINT:** > 94°C.

**CONDITIONS OF FLAMMABILITY:** Combustible mixture. When heated above the flash point, this material emits vapours which, when mixed with air, can burn or be explosive. Heavier than air vapours may travel to an ignition source.

**FLAMMABLE LIMITS IN AIR - Upper (%):** NA. Approximately 11-13 for hydrocarbon component.

**FLAMMABLE LIMITS IN AIR - Lower (%):** NA. Approximately 1.5-2.1 for hydrocarbon component.

**AUTOIGNITION TEMPERATURE:** NA.

**SENSITIVITY TO MECHANICAL IMPACT (Y/N):** NA. No sensitivity expected based on similar products.

**SENSITIVITY TO STATIC DISCHARGE:** NA. Sensitivity possible based on solvent data.

**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.

### 6. ACCIDENTAL RELEASE MEASURES

**ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:** Use safety equipment and procedures appropriate to the size of the spill. Keep potential ignition sources and unnecessary people away. Avoid runoff to natural waters and sewers.
Surround and absorb spills with inert material such as perlite, 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

Precautions to be taken in handling and storage: This product is not extremely combustible, but it is suggested to handle as a combustible liquid. Keep away from potential ignition sources. This material may accumulate a static charge that can discharge violently. Empty, unrinsed containers can retain combustible liquid product or vapours. Improper handling of these may cause injury, or in extreme cases, death. Keep away from food and feed products. Avoid storage in close proximity to insecticides, fungicides, fertilizers, plants and seeds. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use.

8. Exposure Controls/Personal Protection

Exposure limits:

<table>
<thead>
<tr>
<th>Hazardous Ingredients</th>
<th>TWA*</th>
<th>ACGIH TLV®</th>
<th>STEL</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>10</td>
<td>N/E</td>
<td>15</td>
<td>ppm</td>
</tr>
<tr>
<td>Total hydrocarbons</td>
<td>15**</td>
<td>N/E</td>
<td>N/E</td>
<td>ppm</td>
</tr>
</tbody>
</table>

*8-hour TWA unless otherwise noted
**unofficial recommendation of solvent manufacturer

Engineering controls: Use in a well ventilated area. General ventilation with a good source of make-up air recommended as minimum for indoor situations. Ventilation should be adequate to maintain air concentrations below flammable limits.

Respiratory protection equipment: Use an approved pesticide respirator if ventilation is not adequate or exposure to sprays, mists or concentrated vapours is likely.

Protective gloves: Chemical-resistant gloves such as nitrile.

Eye and face protection: Goggles or face shield when handling concentrate.

Other protective equipment: Long sleeved shirt, long pants, socks and shoes suggested as minimum work clothing. Generally, a second layer such as coveralls suggested for handling concentrate. Use other equipment appropriate to specific situation.

Ventilation: Use only in well ventilated area.

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.

Boiling point: NA. Hydrocarbon solvent 235-278°C.

Vapor pressure: NA. Hydrocarbon solvent < 0.1 kPa @ 20°C.

Vapor density (air = 1): NA. Hydrocarbon solvent > 5.

Freezing point: Approximately -20°C.

Melting point: Approximately 0°C.

Physical state: Liquid.

Odour: Hydrocarbon.

Colour: Amber to brown.

Odor threshold (ppm): NA.

Evaporation rate (butyl acetate = 1): NA.
NUFARMA AGRICULTURE INC.

SPECIFIC GRAVITY (water = 1): ........................................ About 1.049
DENSITY @ 25°C: ......................................................... About 1.049
pH: ........................................................................... Approximately 4-5 (1% aqueous)
SOLUBILITY IN WATER (20°C): ...................................... Product is emulsifiable in water.
COEFFICIENT OF WATER/OIL DISTRIBUTION: ........ NA. Product is oil soluble.

10. STABILITY AND REACTIVITY

STABILITY: Stable.
HAZARDOUS POLYMERIZATION: Will not occur.
HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS: Hydrogen bromide, other bromine compounds, carbon dioxide, carbon monoxide, oxides of nitrogen, oxides of sulfur and other potentially toxic combustion products may be present.
INCOMPATIBILITY (MATERIALS TO AVOID): Avoid contact with strong acidic, basic or oxidizing agents.
CONDITIONS TO AVOID: None known.

11. TOXICOLOGICAL INFORMATION

Values are estimates based on studies conducted on similar formulations:
ACUTE ORAL LD₅₀ (mg/kg): .............................................. 1125 (Rat, male); 685 (Rat, female)
ACUTE DERMAL LD₅₀ (mg/kg): ...................................... > 5000 (Rat, both sexes)
ACUTE INHALATION LC₅₀ (mg/l): ..................................... 0.99 mg/l (4-Hour Rat, combined male and female, whole body)
OTHER: Severe skin and eye irritant (Rabbit). Contact sensitizer (Guinea Pig).

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:
Data on bromoxynil octanoate:
96-HOUR LC₅₀ (mg/L): 0.1 (Rainbow Trout)
96-HOUR LC₅₀ (mg/L): 0.053 (Bluegill)
48-HOUR EC₅₀ (mg/L): 0.096 (Daphnia)
DIETARY LC₅₀ (ppm): 1150 (Bobwhite Quail)
DIETARY LC₅₀ (ppm): 1880 (Mallard Duck)

CHEMICAL FATE INFORMATION: Bromoxynil octanoate ester degrades readily to bromoxynil phenol in the environment. Representative soil half-lives are 2 days for the octanoate and 14 days for the phenol.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: 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. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. 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): Contact manufacturer for updates to transport information.

Refer to carton markings.

2012 and earlier production: PESTICIDE, LIQUID, TOXIC, N.O.S. (BROMOXYNIL), 6.1, UN2902, PG III.

2013 and later production: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bromoxynil), Class 9, PG III

Section 1.45.1 of the TDG Regulations provides an exemption from documentation and safety marks only for this product and only when transported by a road or railway vehicle.

15. REGULATORY INFORMATION

WHMIS HAZARD CLASS: D1B and D2B Toxic Materials.

WHMIS TRADE SECRET: Exempt. (This product is regulated under the Pest Control Products Act - WHMIS exempt.)

CANADIAN INVENTORY: This product is currently exempt from CEPA.

HAZARD RATING SYSTEMS:

HMIS: Not Available

National Fire Protection Association (NFPA®) Hazard Ratings:

<table>
<thead>
<tr>
<th>Ratings for This Product</th>
<th>Key to Ratings</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>0 Minimal</td>
</tr>
<tr>
<td>2</td>
<td>1 Slight</td>
</tr>
<tr>
<td>0</td>
<td>2 Moderate</td>
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<td></td>
<td>3 Serious</td>
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<td></td>
<td>4 Severe</td>
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<td>Health Hazard</td>
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<tr>
<td>Flammability</td>
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<tr>
<td>Instability</td>
<td></td>
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</tbody>
</table>

16. OTHER INFORMATION

EMERGENCY TELEPHONE NUMBERS:
For spills or transportation accidents, Chemtrex, 1-800-424-9300.
For health or environmental emergencies, Prosar, 1-877-325-1840.
For product and use information, Nufarm Agriculture Inc., 1-800-868-5444.

REVISIONS:
The following has been revised since the last issue of this MSDS: Section 1, 3 & 11 revisions.

ADDITIONAL INFORMATION:
Abbreviations used throughout the MSDS are:

NA = Not available
NAp = Not applicable
N/E = None Established.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Company and published references utilized in preparation of the MSDS.

***END OF MSDS***