Dow AgroSciences LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name
SURMOUNT* Herbicide

COMPANY IDENTIFICATION
Dow AgroSciences LLC
A Subsidiary of The Dow Chemical Company
9330 Zionsville Road
Indianapolis, IN 46268-1189
United States

Customer Information Number: 800-992-5994
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 800-992-5994
Local Emergency Contact: 352-323-3500

2. Hazards Identification

Emergency Overview
Color: Tan to brown
Physical State: Liquid.
Odor: Amine.

Hazard of product:

DANGER! Causes severe eye burns. May cause respiratory tract irritation. Evacuate area. Keep upwind of spill. Toxic fumes may be released in fire situations. Highly toxic to fish and/or other aquatic organisms. Suspect cancer hazard. May cause cancer.

OSHA Hazard Communication Standard
This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects
Eye Contact: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.
Skin Contact: Brief contact may cause slight skin irritation with local redness. May cause drying and flaking of the skin.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: Prolonged exposure is not expected to cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.

Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Aspiration hazard: Based on physical properties, not likely to be an aspiration hazard.

Effects of Repeated Exposure: For the active ingredient(s): In animals, effects have been reported on the following organs: Liver. Based on information for component(s): Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust. Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Ingestion of naphthalene by humans has caused hemolytic anemia. In animals, effects have been reported on the following organs: Lung. Gastrointestinal tract. Thyroid. Urinary tract. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Cancer Information: Contains naphthalene which has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

Birth Defects/Developmental Effects: For the active ingredient(s): Fluroxypyr 1-methylheptyl ester. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive Effects: For the minor component(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

### 3. Composition Information

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picloram trisopropanolamine salt</td>
<td>6753-47-5</td>
<td>13.2 %</td>
</tr>
<tr>
<td>Fluroxypyr 1-methylheptyl ester</td>
<td>81406-37-3</td>
<td>10.6 %</td>
</tr>
<tr>
<td>Heavy aromatic naphtha</td>
<td>64742-94-5</td>
<td>15.0 %</td>
</tr>
<tr>
<td>Dipropylene glycol monomethyl ether</td>
<td>34590-94-8</td>
<td>14.9 %</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>2.1 %</td>
</tr>
<tr>
<td>Triisopropanolamine</td>
<td>122-20-3</td>
<td>1.9 %</td>
</tr>
<tr>
<td>Balance</td>
<td>Not available</td>
<td>42.3 %</td>
</tr>
</tbody>
</table>

### 4. First-aid measures

**Description of first aid measures**

**General advice:** First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for 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.

**Eye Contact:** Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

**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 give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed**
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

**Indication of immediate medical attention and special treatment needed**

Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If hemolysis is suspected, monitor hemoglobin, hematocrit, plasma free hemoglobin, and urinalysis. Whole blood or packed RBC transfusion may be required in severe cases. Alkalinization of urine with bicarbonate may prevent renal damage. Administer 100% oxygen to relieve headache and a general sense of weakness. Determine methemoglobin concentration of blood every 3 to 6 hours for first 24 hours. It should return to normal within 24 hours. The treatment of toxic methemoglobinemia may include the intravenous administration of methylene blue. If methemoglobin >10-20% consider methylene blue 1-2 mg/kg body weight as 1% solution intravenously over 5 minutes followed by 15-30 cc flush (Price D, Methemoglobinemia, Goldfrank Toxicologic Emergencies, 5th ed., 1994). Also provide 100% oxygen. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

Skin contact may aggravate preexisting dermatitis. Excessive exposure may aggravate preexisting liver and kidney disease. Repeated excessive exposure may aggravate preexisting lung disease.

### 5. Fire Fighting Measures

**Suitable extinguishing media**

To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

**Special hazards arising from the substance or mixture**

**Hazardous Combustion Products:** Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** This material will not burn until the water has evaporated. Residue can burn. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the “Accidental Release Measures” and the “Ecological Information” sections of this (M)SDS.

**Special Protective Equipment for Firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

### 6. Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures:** Evacuate area. Refer to Section 7, Handling, for additional precautionary measures. Only trained and properly protected personnel must be involved in clean-up operations. Keep upwind of spill. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Handling
General Handling: Keep out of reach of children. Do not get in eyes. Do not swallow. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Storage
Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. Exposure Controls / Personal Protection

Exposure Limits

<table>
<thead>
<tr>
<th>Component</th>
<th>List</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluroxypyr 1-methylheptyl ester</td>
<td>Dow IHG</td>
<td>TWA</td>
<td>10 mg/m3</td>
</tr>
<tr>
<td>Dipropylene glycol monomethyl ether</td>
<td>OSHA Table Z-1</td>
<td>PEL</td>
<td>600 mg/m3 100 ppm SKIN</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>TWA</td>
<td>100 ppm SKIN</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>STEL</td>
<td>150 ppm SKIN</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>ACGIH</td>
<td>TWA</td>
<td>10 ppm SKIN</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>STEL</td>
<td>15 ppm SKIN</td>
</tr>
<tr>
<td></td>
<td>OSHA Table Z-1</td>
<td>PEL</td>
<td>50 mg/m3 10 ppm</td>
</tr>
<tr>
<td>Triisopropanolamine</td>
<td>Dow IHG</td>
<td>TWA</td>
<td>10 mg/m3</td>
</tr>
</tbody>
</table>

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING. A “skin” notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

Personal Protection

Eye/Face Protection: Use chemical goggles.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Ethyl vinyl alcohol laminate ("EVAL"). Examples
of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Respiratory Protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

**Ingestion:** Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

**Engineering Controls**

**Ventilation:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

### 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Tan to brown</td>
</tr>
<tr>
<td>Odor</td>
<td>Amine</td>
</tr>
<tr>
<td>Odor Threshold</td>
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</tr>
<tr>
<td><strong>pH</strong></td>
<td>7.4 pH Electrode</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>No test data available</td>
</tr>
<tr>
<td>Boiling Point (760 mmHg)</td>
<td>No test data available</td>
</tr>
<tr>
<td>Flash Point - Closed Cup</td>
<td>&gt; 100 °C (&gt; 212 °F) Closed Cup</td>
</tr>
<tr>
<td>Evaporation Rate (Butyl Acetate = 1)</td>
<td>No test data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Lower: No test data available</td>
</tr>
<tr>
<td>Flammable Limits In Air (solid, gas)</td>
<td>Upper: No test data available</td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>No test data available</td>
</tr>
<tr>
<td><strong>Vapor Density (air = 1)</strong></td>
<td>No test data available</td>
</tr>
<tr>
<td>Specific Gravity (H2O = 1)</td>
<td>1.083</td>
</tr>
<tr>
<td><strong>Solubility in water (by weight)</strong></td>
<td>Emulsifiable</td>
</tr>
<tr>
<td>Partition coefficient, n-octanol/water (log Pow)</td>
<td>No data available for this product. See Section 12 for individual component data.</td>
</tr>
<tr>
<td><strong>Autoignition Temperature</strong></td>
<td>No test data available</td>
</tr>
<tr>
<td><strong>Decomposition</strong></td>
<td>No test data available</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Dynamic Viscosity</strong></td>
<td>77.2 mPa.s @ 20 °C</td>
</tr>
<tr>
<td><strong>Kinematic Viscosity</strong></td>
<td>No test data available</td>
</tr>
<tr>
<td><strong>Explosive properties</strong></td>
<td>No test data available</td>
</tr>
<tr>
<td><strong>Oxidizing properties</strong></td>
<td>No test data available</td>
</tr>
<tr>
<td><strong>Liquid Density</strong></td>
<td>1.083 g/cm3 @ 20 °C Pyknometer</td>
</tr>
</tbody>
</table>

### 10. Stability and Reactivity
Reactivity
No dangerous reaction known under conditions of normal use.

Chemical stability
Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions
Polymerization will not occur.

Conditions to Avoid: Can coagulate if frozen. Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible Materials: Avoid contact with: Oxidizers. Addition of chemicals may cause phase separation.

Hazardous decomposition products
Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Nitrogen oxides. Toxic gases are released during decomposition.

11. Toxicological Information

Acute Toxicity
Ingestion
As product: LD50, rat > 5,000 mg/kg

Dermal
As product: LD50, rat > 5,000 mg/kg

Inhalation
As product: LC50, 4 h, Aerosol, rat > 5.56 mg/l

Eye damage/eye irritation
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Skin corrosion/irritation
Brief contact may cause slight skin irritation with local redness. May cause drying and flaking of the skin.

Sensitization
Skin
Did not cause allergic skin reactions when tested in guinea pigs.

Respiratory
No relevant data found.

Repeated Dose Toxicity
For the active ingredient(s): In animals, effects have been reported on the following organs: Liver. Based on information for component(s): Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust. Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Ingestion of naphthalene by humans has caused hemolytic anemia. In animals, effects have been reported on the following organs: Lung. Gastrointestinal tract. Thyroid. Urinary tract. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Chronic Toxicity and Carcinogenicity
Contains naphthalene which has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative. For similar active ingredient(s): Picloram. Fluroxypyr-methyl. Did not cause cancer in laboratory animals.

Carcinogenicity Classifications:

<table>
<thead>
<tr>
<th>Component</th>
<th>List</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>IARC</td>
<td>Possibly carcinogenic to humans.: 2B</td>
</tr>
<tr>
<td></td>
<td>NTP</td>
<td>Anticipated carcinogen.</td>
</tr>
</tbody>
</table>

Developmental Toxicity
For the active ingredient(s): Fluroxypyr 1-methylheptyl ester. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For the component(s) tested: Did not cause birth defects or any other fetal effects in laboratory animals.
Reproductive Toxicity
For the minor component(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. For similar active ingredient(s), Picloram. For the active ingredient(s): Fluroxypyr 1-methylheptyl ester. In animal studies, did not interfere with reproduction.

Genetic Toxicology
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

12. Ecological Information

Toxicity
As product: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg). For the active ingredient(s): Fluroxypyr 1-methylheptyl ester. Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

Fish Acute & Prolonged Toxicity
For the active ingredient(s): Fluroxypyr 1-methylheptyl ester. LC50, Cyprinodon variegatus (sheepshead minnow), 96 h: > 0.0866 mg/l
Toxicity to aquatic species occurs at concentrations above material's water solubility.

Aquatic Invertebrate Acute Toxicity
For the active ingredient(s): Fluroxypyr 1-methylheptyl ester. EC50, Daphnia magna (Water flea), semi-static test, 48 h, immobilization: > 0.183 mg/l
Toxicity to aquatic species occurs at concentrations above material's water solubility.

Aquatic Plant Toxicity
For the active ingredient(s): Fluroxypyr 1-methylheptyl ester. ErC50, diatom Navicula sp., biomass growth inhibition, 72 h: 0.24 mg/l

Toxicity to Above Ground Organisms
oral LD50, Apis mellifera (bees): > 200 micrograms/bee
oral LD50, Coturnix japonica (Japanese quail): > 2,250 mg/kg

Persistence and Degradability

Data for Component: Picloram trisopropynolamine salt
For similar active ingredient(s). Picloram. Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions. Biodegradation may occur under aerobic conditions (in the presence of oxygen). Surface photodegradation is expected with exposure to sunlight.

Data for Component: Fluroxypyr 1-methylheptyl ester
Material is not readily biodegradable according to OECD/EEC guidelines. Stability in Water (1/2-life):
454 d
OECD Biodegradation Tests:

<table>
<thead>
<tr>
<th>Biodegradation</th>
<th>Exposure Time</th>
<th>Method</th>
<th>10 Day Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 %</td>
<td>28 d</td>
<td>OECD 301D Test</td>
<td>fail</td>
</tr>
</tbody>
</table>

Theoretical Oxygen Demand: 2.2 mg/mg

Data for Component: Heavy aromatic naphtha
Material is not readily biodegradable according to OECD/EEC guidelines.

Data for Component: Dipropylene glycol monomethyl ether
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% biodegradation in OECD test(s) for inherent biodegradability).

OECD Biodegradation Tests:

<table>
<thead>
<tr>
<th>Biodegradation</th>
<th>Exposure Time</th>
<th>Method</th>
<th>10 Day Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 %</td>
<td>28 d</td>
<td>OECD 301F Test</td>
<td>pass</td>
</tr>
</tbody>
</table>

Indirect Photodegradation with OH Radicals
<table>
<thead>
<tr>
<th>Rate Constant</th>
<th>Atmospheric Half-life</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00E-05 cm³/s</td>
<td>3.4 - 10.4 h</td>
<td>Estimated.</td>
</tr>
</tbody>
</table>

**Biological oxygen demand (BOD):**

<table>
<thead>
<tr>
<th></th>
<th>BOD 5</th>
<th>BOD 10</th>
<th>BOD 20</th>
<th>BOD 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 %</td>
<td>0 %</td>
<td>31.6 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Chemical Oxygen Demand:** 2.02 mg/mg  
**Theoretical Oxygen Demand:** 2.06 mg/mg

**Data for Component: Naphthalene**

Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).  
Indirect Photodegradation with OH Radicals  

<table>
<thead>
<tr>
<th>Rate Constant</th>
<th>Atmospheric Half-life</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.16E-11 cm³/s</td>
<td>5.9 h</td>
<td>Estimated.</td>
</tr>
</tbody>
</table>

**Biological oxygen demand (BOD):**

<table>
<thead>
<tr>
<th></th>
<th>BOD 5</th>
<th>BOD 10</th>
<th>BOD 20</th>
<th>BOD 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>57.000 %</td>
<td>71.000 %</td>
<td>71.000 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Theoretical Oxygen Demand:** 3.00 mg/mg

**Data for Component: Trisopropanolamine**

Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Biodegradation rate may increase in soil and/or water with acclimation. Material is not readily biodegradable according to OECD/EEC guidelines.  
**OECD Biodegradation Tests:**  
Biodegradation | Exposure Time | Method | 10 Day Window |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 %</td>
<td>28 d</td>
<td>OECD 301F Test</td>
<td>fail</td>
</tr>
</tbody>
</table>

Indirect Photodegradation with OH Radicals  

<table>
<thead>
<tr>
<th>Rate Constant</th>
<th>Atmospheric Half-life</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2E-10 cm³/s</td>
<td>3 h</td>
<td>Estimated.</td>
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**Biological oxygen demand (BOD):**

<table>
<thead>
<tr>
<th></th>
<th>BOD 5</th>
<th>BOD 10</th>
<th>BOD 20</th>
<th>BOD 28</th>
</tr>
</thead>
<tbody>
<tr>
<td>47 %</td>
<td>70 %</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Theoretical Oxygen Demand:** 2.35 mg/mg

**Data for Component: Balance**

No relevant data found.

**Bioaccumulative potential**

**Data for Component: Picloram trisopropanolamine salt**

Bioaccumulation: For similar active ingredient(s). Picloram. Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Data for Component: Fluroxypyr 1-methylheptyl ester**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).  
**Partition coefficient, n-octanol/water (log Pow):** 5.04 Measured  
**Bioconcentration Factor (BCF):** 26; Oncorhynchus mykiss (rainbow trout); Measured

**Data for Component: Heavy aromatic naphtha**

Bioaccumulation: No data available.

**Data for Component: Dipropylene glycol monomethyl ether**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).  
**Partition coefficient, n-octanol/water (log Pow):** 1.01 Measured

**Data for Component: Naphthalene**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).  
**Partition coefficient, n-octanol/water (log Pow):** 3.3 Measured  
**Bioconcentration Factor (BCF):** 40 - 300; Fish; Measured

**Data for Component: Trisopropanolamine**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).  
**Partition coefficient, n-octanol/water (log Pow):** -0.015 Measured  
**Bioconcentration Factor (BCF):** < 0.57; Fish; Measured
Data for Component: Balance

- Bioaccumulation: No relevant data found.

Mobility in soil

Data for Component: Picloram triisopropanolamine salt

- Mobility in soil: For similar active ingredient(s), Picloram, Potential for mobility in soil is very high (Koc between 0 and 50).

Data for Component: Fluroxypyr 1-methylheptyl ester

- Mobility in soil: Expected to be relatively immobile in soil (Koc > 5000).
- Partition coefficient, soil organic carbon/water (Koc): 6,200 - 43,000
- Henry’s Law Constant (H): 5.42E-08 atm*m3/mole; 25 °C Measured

Data for Component: Heavy aromatic naphtha

- Mobility in soil: Given its very low Henry’s constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process., Potential for mobility in soil is very high (Koc between 0 and 50).

Data for Component: Dipropylene glycol monomethyl ether

- Mobility in soil: Given its very low Henry’s constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process., Potential for mobility in soil is very high (Koc between 0 and 50).
- Partition coefficient, soil organic carbon/water (Koc): 0.28 Estimated.

Data for Component: Naphthalene

- Mobility in soil: Potential for mobility in soil is medium (Koc between 150 and 500).
- Partition coefficient, soil organic carbon/water (Koc): 240 - 1,300 Measured
- Henry’s Law Constant (H): 2.92E-04 - 5.53E-04 atm*m3/mole; 25 °C Measured

Distribution in Environment: Mackay Level 1 Fugacity Model:

<table>
<thead>
<tr>
<th>Air</th>
<th>Water</th>
<th>Biota</th>
<th>Soil</th>
<th>Sediment</th>
</tr>
</thead>
<tbody>
<tr>
<td>74 %</td>
<td>8.5 %</td>
<td>&lt; 0.01 %</td>
<td>18 %</td>
<td>0.39 %</td>
</tr>
</tbody>
</table>

Data for Component: Trisopropanolamine

- Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).
- Partition coefficient, soil organic carbon/water (Koc): 10 Estimated.
- Henry’s Law Constant (H): 1E-06 Pa m³/mol; 25 °C Estimated.

Data for Component: Balance

- Mobility in soil: No relevant data found.

13. Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. Transport Information

DOT Non-Bulk

NOT REGULATED

DOT Bulk

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: Fluroxypyr, NAPHTHALENE
Hazard Class: 9  ID Number: UN3082  Packing Group: PG III
IMDG
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: Fluroxypyr, NAPHTHALENE
Hazard Class: 9  ID Number: UN3082  Packing Group: PG III
EMS Number: F-A,S-F
Marine pollutant.: Yes

ICAO/IATA
Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: Fluroxypyr, NAPHTHALENE
Hazard Class: 9  ID Number: UN3082  Packing Group: PG III
Cargo Packing Instruction: 964
Passenger Packing Instruction: 964
Additional Information

Reportable quantity: 4,578 lb – NAPHTHALENE

MARINE POLLUTANT

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard
This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Immediate (Acute) Health Hazard  Yes
Delayed (Chronic) Health Hazard  Yes
Fire Hazard  No
Reactive Hazard  No
Sudden Release of Pressure Hazard  No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:
The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy aromatic naphtha</td>
<td>64742-94-5</td>
<td>15.0%</td>
</tr>
<tr>
<td>Dipropylene glycol monomethyl ether</td>
<td>34590-94-8</td>
<td>14.9%</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>2.1%</td>
</tr>
<tr>
<td>Triisopropanolamine</td>
<td>122-20-3</td>
<td>1.9%</td>
</tr>
</tbody>
</table>

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103**
This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

**California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)**
WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

**Toxic Substances Control Act (TSCA)**
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

### 16. Other Information

**Hazard Rating System**

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

**Revision**
Identification Number: 56136 / 1016 / Issue Date 04/01/2013 / Version: 4.0
DAS Code: LAF-4
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

| N/A | Not available |
| W/W | Weight/Weight |
| OEL | Occupational Exposure Limit |
| STEL | Short Term Exposure Limit |
| TWA | Time Weighted Average |
| ACGIH | American Conference of Governmental Industrial Hygienists, Inc. |
| DOW IHG | Dow Industrial Hygiene Guideline |
| WEEL | Workplace Environmental Exposure Level |
| HAZ DES | Hazard Designation |
| Action Level | A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded. |

Dow AgroSciences LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer’s/user’s responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer’s/user’s duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.