1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Authority® First DF Herbicide

Other means of identification

Product Code(s) 6150-A

Synonyms

SULFENTRAZONE (FMC 97285): 2′,4′-dichloro-5′-(4-difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl) methanesulfonanilide (IUPAC name); N-[2,4-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]phenyl] methanesulfonamide (CAS name); CLORANSULAM-METHYL: N-(2-carbomethoxy-6-chlorophenyl)-5-ethoxy-7-fluoro(1,2,4) triazolo-[1,5-c]pyrimidine-2-sulfonamide

Active Ingredient(s) Sulfentrazone, Cloransulam-methyl

Chemical Family Triazolinones, Triazolopyrimidine sulfonanilide

Recommended use of the chemical and restrictions on use

Recommended Use: Herbicide

Restrictions on Use: Use as recommended by the label

Manufacturer Address

FMC Corporation
2929 Walnut Street
Philadelphia, PA 19104
(215) 299-6000 (General Information)
medsinfo@fmc.com (E-Mail General Information)

Emergency telephone number

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)

Medical Emergencies:
1 800 / 331-3148 (PROSAR - U.S.A. & Canada)
1 651 / 632-6793 (PROSAR - All Other Countries - Collect)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Specific target organ toxicity (repeated exposure) Category 2
GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Warning

Hazard Statements
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements - Prevention
P260 - Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response
P314 - Get medical advice/attention if you feel unwell

Precautionary Statements - Disposal
P501 - Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

No hazards not otherwise classified were identified.

Other Information
Very toxic to aquatic life.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family
Triazolinones, Triazolopyrimidine sulfonanilide.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfentrazone</td>
<td>122836-35-5</td>
<td>61.4</td>
</tr>
<tr>
<td>Chloroansulam-methyl</td>
<td>147150-35-4</td>
<td>7.9</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>&lt;5</td>
</tr>
</tbody>
</table>

Synonyms are provided in Section 1.

4. FIRST AID MEASURES

Eye Contact
Hold eyes open and rinse slowly and gently with water for 15-30 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. 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 15-30 minutes. Call a poison control center or doctor for further treatment advice.

Inhalation
Move to fresh air. If person is not breathing, call 911 (within the U.S. and Canada) or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
Ingestion
Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed
Central nervous system effects.

Indication of immediate medical attention and special treatment needed, if necessary
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Specific Hazards Arising from the Chemical
Finely dispersed particles can form explosive mixtures in air.

Explosion data
Not sensitive.

Sensitivity to Mechanical Impact
Not sensitive.

Precautions for firefighters
Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Isolate and post spill area. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.

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

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
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. 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.

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.

Incompatible products
None known

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<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>Toluene (108-88-3)</td>
<td>TWA: 20 ppm</td>
<td>TWA: 200 ppm Ceiling: 300 ppm</td>
<td>IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m³</td>
<td>Mexico: TWA 50 ppm Mexico: TWA 188 mg/m³</td>
</tr>
</tbody>
</table>
### Appropriate engineering 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.

**Individual protection measures, such as personal protective equipment**

**Eye/Face Protection**  
For dust, splash, mist or spray exposure, wear chemical protective goggles.

**Skin and Body Protection**  
Wear long-sleeved shirt, long pants, socks, and shoes.

**Hand Protection**  
Protective gloves

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

**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.

**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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Tan Granules</td>
</tr>
<tr>
<td><strong>Physical State</strong></td>
<td>Solid</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Tan</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Musty</td>
</tr>
<tr>
<td><strong>Odor threshold</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>6-8</td>
</tr>
<tr>
<td><strong>Melting point/freezing point</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Boiling Point/Range</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Evaporation Rate</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Flammability Limit in Air</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Upper flammability limit</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Lower flammability limit</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Specific gravity</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Water solubility</strong></td>
<td>Dispersible in water</td>
</tr>
<tr>
<td><strong>Solubility in other solvents</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Partition coefficient</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Autoignition temperature</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Viscosity, kinematic</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Viscosity, dynamic</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Explosive properties</strong></td>
<td>Fine dust dispersed in air may ignite</td>
</tr>
<tr>
<td><strong>Oxidizing properties</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Molecular weight</strong></td>
<td>No information available</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity
- Not applicable

Chemical Stability
- Stable.

Possibility of Hazardous Reactions
- None under normal processing.

Hazardous polymerization
- Hazardous polymerization does not occur.

Conditions to avoid
- Excessive heat

Incompatible materials
- None known.

Hazardous Decomposition Products
- Carbon oxides (COx), Nitrogen oxides (NOx), Sulfur oxides, Hydrogen chloride, Hydrogen fluoride.

11. TOXICOLOGICAL INFORMATION

Product Information
- LD50 Oral: 2,504 mg/kg (rat)
- LD50 Dermal: > 5,000 mg/kg (rabbit)
- LC50 Inhalation: > 4.9 mg/L 4 hr (rat)

Serious eye damage/eye irritation
- Minimally irritating (rabbit).

Skin corrosion/irritation
- Slightly irritating (rabbit).

Sensitization
- Non-sensitizing

Information on toxicological effects
- Signs of toxicity in laboratory animals given sulfentrazone included clonic convulsions, ataxia, hypersensitivity to touch, chromorhinorrhea, abdominogenital staining, decreased locomotion, lacrimation, nasal discharge, and squinting eyes.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic toxicity
- Sulfentrazone: Prolonged exposure cause decreased hemoglobin content and hematocrit, and increased spleen weight and splenic extramedullary hematopoiesis at high doses in animal studies.

Mutagenicity
- Sulfentrazone: Not genotoxic in laboratory studies.

Carcinogenicity
- Sulfentrazone, Cloransulam-methyl: No evidence of carcinogenicity from animal studies.

Neurological effects
- Sulfentrazone: Clinical signs of neurotoxicity in laboratory animals was observed at high dose levels.

Reproductive toxicity
- Sulfentrazone, Cloransulam-methyl: No toxicity to reproduction in animal studies.

Developmental toxicity
- Sulfentrazone: Fetal weight decreased; delayed skeletal ossification observed at maternally non-toxic doses are reversible effects and a dose-response is established; malformations observed in fetuses at maternally toxic doses and consistent with the mode of action for protoporphyrinogen oxidase inhibitors. Developmental toxicity testing and results were generated for sulfentrazone with toluene present as an impurity. Cloransulam-methyl: Not teratogenic in animal studies.

STOT - single exposure
- Not classified.

STOT - repeated exposure
- May cause damage to organs through prolonged or repeated exposure.

Target organ effects
- Sulfentrazone: Hematopoietic system.

Neurological effects
- Sulfentrazone: Clinical signs of neurotoxicity in laboratory animals was observed at high dose levels.

Aspiration hazard
- No information available.
Ecotoxicity

### Sulfentrazone (122836-35-5)

<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>Sulfentrazone</td>
<td>72 h EC50</td>
<td>Algae</td>
<td>32.8</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>48 h EC50</td>
<td>Crustacea</td>
<td>60.4</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>96 h LC50</td>
<td>Fish</td>
<td>94</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>21 d NOEC</td>
<td>Fish</td>
<td>5.9</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>21 d NOEC</td>
<td>Crustacea</td>
<td>0.51</td>
<td>mg/L</td>
</tr>
</tbody>
</table>

### Chloroansulam-methyl (147150-35-4)

<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>Cloransulam-methyl</td>
<td>LC50</td>
<td>Fish</td>
<td>&gt;86</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>LC50</td>
<td>Daphnia magna</td>
<td>98</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>EC50</td>
<td>Algae</td>
<td>3.5-12</td>
<td>µg/L</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Bobwhite quail</td>
<td>&gt;2200</td>
<td>mg/kg</td>
</tr>
</tbody>
</table>

### Persistence and degradability


### Bioaccumulation

Sulfentrazone, Cloransulam-methyl: The substance does not have a potential for bioconcentration.

### Mobility

Sulfentrazone: Mobile; Has potential to reach ground water.

### 13. DISPOSAL CONSIDERATIONS

#### 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 not a hazardous material as defined by U.S. Department of Transportation at 49 CFR Parts 100 through 185.

#### TDG

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

- **UN/ID no**: UN3077
- **Hazard class**: 9
- **Packing Group**: III
- **Marine Pollutant**: Sulfentrazone. Cloransulam-methyl.
- **Description**: UN3077, Environmentally hazardous substance, solid, n.o.s. (Sulfentrazone, Cloransulam-methyl), 9, PGIII, Marine Pollutant

#### ICAO/IATA

- **UN/ID no**: UN3077
- **Hazard class**: 9
- **Packing Group**: III
- **Description**: UN3077, Environmentally hazardous substance, solid, n.o.s. (Sulfentrazone, Cloransulam-methyl), 9, PGIII, Marine Pollutant

#### IMDG/IMO

- **UN/ID no**: UN3077
- **Hazard class**: 9
- **Packing Group**: III
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>Toluene - 108-88-3</td>
<td>108-88-3</td>
<td>&lt;5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
- Acute health hazard: No
- Chronic health hazard: Yes
- Fire hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: No

Clean Water Act
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene - 108-88-3</td>
<td>1000 lb</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

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>Toluene - 108-88-3</td>
<td>1000 lb</td>
<td>454 kg</td>
</tr>
</tbody>
</table>

FIFRA Information
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION
Causes moderate eye irritation. Harmful if inhaled, swallowed, or absorbed through skin.
This pesticide is toxic to marine/estuarine invertebrates.

US State Regulations

California Proposition 65
This product contains the following Proposition 65 chemicals.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Prop. 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene - 108-88-3</td>
<td>Developmental</td>
</tr>
</tbody>
</table>

U.S. State Right-to-Know Regulations
Authority® First DF Herbicide

SDS #: 6150-A
Revision date: 2016-05-26
Version 1.03

This product does not contain any substances regulated by state right-to-know regulations

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene 108-88-3</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

International Inventories

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>TSCA (United States)</th>
<th>DSL (Canada)</th>
<th>EINECS/ELINCS (Europe)</th>
<th>ENCS (Japan)</th>
<th>China (IECSC)</th>
<th>KECL (Korea)</th>
<th>PICCS (Philippines)</th>
<th>AICS (Australia)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene 108-88-3</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Mexico - Grade
Slight risk, Grade 1

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Carcinogen Status</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mexico - Pollutant Release and Transfer Register - Reporting Emissions for Fabrication, Process or Use - Threshold Quantities

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Mexico - Pollutant Release and Transfer Register - Reporting Emissions - Threshold Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>Mexico: TWA 50 ppm 1000 kg/yr 5000 kg/yr</td>
</tr>
</tbody>
</table>

WHMIS Statement
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
D2B - Toxic materials

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Special Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Physical hazard</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1*</td>
<td>0</td>
<td>0</td>
<td>X</td>
</tr>
</tbody>
</table>

*Indicates a chronic health hazard.

Revision date: 2016-05-26
Reason for revision: Initial Release

Disclaimer
FMC Corporation believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specified product designated and may not be applicable where such product is used in combination with any other materials or in any process. Use of this product is regulated by the U.S. Environmental Protection Agency (EPA). It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Further, since the conditions and methods of use are beyond the control of FMC Corporation, FMC corporation expressly disclaims any and all liability as to any results obtained or arising from any use of the products or reliance on such information.
End of Safety Data Sheet