1. PRODUCT AND COMPANY IDENTIFICATION

**Active Ingredient(s)**

Sulfentrazone.

**Recommended use**

Herbicide

**Synonyms**

FMC 97285; 2’,4’-dichloro-5’-(4-difluoromethyl-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl) methanesulfonanilide; N-[2,4-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]phenyl] methanesulfonamide

**Chemical Family**

Triazolinones

**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**

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

2. Hazards identification

**Appearance**

off-white liquid

**Physical state**

liquid

**Odor**

Faint Alcohol

**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 drowsiness and dizziness.

**Ingestion**

May cause central nervous system depression. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Chronic effects**

Effects are expected to be similar to those that are seen with acute toxicity. Contains toluene.

Exposure to toluene in animals via inhalation and intentional overexposure to toluene in humans has caused adverse fetal development effects.
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>Sulfentrazone</td>
<td>122836-35-5</td>
<td>40</td>
</tr>
<tr>
<td>Propylene glycol</td>
<td>57-55-6</td>
<td>5-10</td>
</tr>
<tr>
<td>Oxirane, methyl-, polymer with oxirane, monobutyl ester</td>
<td>9038-95-3</td>
<td>1-5</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>&lt;3</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 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
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. Do not induce vomiting or give anything by mouth to an unconscious person.

5. Fire-fighting measures

Flash Point
> 94 °C / > 201 °F

Method
Tag Closed Cup

Sensitivity to Mechanical Impact
not applicable

Sensitivity to Static Discharge
not applicable

Suitable extinguishing media
Carbon dioxide (CO\(_2\)). Foam. Dry powder. Water spray.

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

NFPA
- Health Hazard 1
- Flammability 1
- 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.

8. Exposure controls/personal protection

Exposure guidelines

<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 STEL: 150 ppm STEL: 560 mg/m³</td>
<td>Mexico: S* TWA 50 ppm Mexico: TWA 188 mg/m³</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>Propylene glycol 57-55-6</td>
<td>TWA: 20 ppm</td>
<td>TWA: 50 ppm TWA: 188 mg/m³ Skin</td>
<td>TWA: 20 ppm</td>
<td>TWA: 50 ppm TWA: 188 mg/m³ Skin</td>
</tr>
<tr>
<td>Toluene 108-88-3</td>
<td>TWA: 20 ppm</td>
<td>TWA: 50 ppm TWA: 188 mg/m³ Skin</td>
<td>TWA: 20 ppm</td>
<td>TWA: 50 ppm TWA: 188 mg/m³ Skin</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.

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
10. Stability and reactivity

Stability
Stable.

Conditions to avoid
Excessive heat

Hazardous decomposition products
Carbon oxides, nitrogen oxides (NOx), sulfur oxides, hydrogen chloride, hydrogen fluoride.

Hazardous polymerization
Hazardous polymerization does not occur

11. Toxicological information

Acute Toxicity
Signs of toxicity in laboratory animals, with sulfentrazone, included clonic convulsions, ataxia, hypersensitivity to touch, chromorhinorrhea, abdominogenital staining, decreased locomotion, lacrimation, nasal discharge, and squinting eyes.

Eye contact
Slightly or non-irritating (rabbit)

Skin contact
Slightly or non-irritating (rabbit)

LD50 Dermal
> 2000 mg/kg (rabbit)

LD50 Oral
2084 mg/kg (rat)

LC50 Inhalation:
> 2.72 mg/L 4 hr (rat) - Maximum attainable concentration (zero mortality)

Chronic Toxicity - Other Ingredient(s)

Chronic Toxicity
Effects are expected to be similar to those that are seen with acute toxicity. Contains toluene.

Exposure to toluene in animals via inhalation and intentional overexposure to toluene in humans has caused adverse fetal development effects

Carcinogenicity
Sulfentrazone: Did not show carcinogenic effects in animal experiments.

Mutagenicity
Sulfentrazone: Did not show mutagenic effects in animal experiments.

Reproductive toxicity
Offspring Toxicity (sulfentrazone): LOAEL = 33 mg/kg/day for males; 40 mg/kg/day for females.
Neurological Effects

Sulfentrazone: Altered motor activity and FOB effects, which reverse after single exposure, with no signs of histopathology.

Developmental Toxicity

Sulfentrazone: NOAEL of 10 mg/kg/day in the developmental toxicity study in rat. NOAEL of 14 mg/kg/day in a 2-generation reproduction study. Contains ingredients that have suspected developmental hazards. Inhalation of toluene vapors at high doses have resulted in an increased incidence of malformations and decreased fetal weight in laboratory animals.

Target Organ Effects

Sulfentrazone: Hematopoietic System.

<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>
<tbody>
<tr>
<td>Sulfentrazone</td>
<td>120 h LC50</td>
<td>Algae 31 µg/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>48 h LC50</td>
<td>Aquatic organisms 60.4 mg/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>96 h LC50</td>
<td>Fish 94 mg/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Bobwhite quail &gt;2250 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Dietary</td>
<td>Mallard duck &gt;5620 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfentrazone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Ecological information

Ecotoxicity

Ecotoxicity effects

Very toxic to aquatic organisms.

Environmental Fate

Toluene

<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>
<tbody>
<tr>
<td>Propylene glycol</td>
<td>19000 mg/L EC50 96 h (Pseudokirchneriella subcapitata)</td>
<td>LC50 51600 mg/L Oncorhynchus mykiss 96 h LC50 41 - 47 mL/L Oncorhynchus mykiss 96 h LC50 51400 mg/L Pimephales promelas 96 h LC50 710 mg/L Pimephales promelas 96 h</td>
<td></td>
<td>EC50 &gt; &gt;10000 mg/L 24 h EC50 &gt; &gt;10000 mg/L 48 h</td>
</tr>
<tr>
<td>Toluene</td>
<td>&gt;433 mg/L EC50 96 h (Pseudokirchneriella subcapitata) 12.5 mg/L EC50 72 h (Pseudokirchneriella subcapitata)</td>
<td>LC50 15.22-19.05 mg/L Pimephales promelas 96 h LC50 12.6 mg/L Pimephales promelas 96 h LC50 5.89-7.81 mg/L Oncorhynchus mykiss 96 h LC50 14.1-17.16 mg/L Oncorhynchus mykiss 96 h LC50 5.8 mg/L Oncorhynchus mykiss 96 h LC50 11.0-15.0 mg/L Lepomis macrochirus 96 h LC50 54 mg/L Oryzias latipes 96 h LC50 28.2 mg/L Poecilia reticulata 96 h LC50 50.87-70.34 mg/L Poecilia reticulata 96 h</td>
<td></td>
<td>EC50 5.46 - 9.83 mg/L 48 h EC50 11.5 mg/L 48 h</td>
</tr>
</tbody>
</table>
DISMISS™ TURF HERBICIDE

Sulfentrazone (122836-35-5)

<table>
<thead>
<tr>
<th>Active Ingredient(s)</th>
<th>Type of Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfentrazone</td>
<td>Bioconcentration factor (BCF)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Half-life in soil</td>
<td>2-18 months</td>
</tr>
<tr>
<td></td>
<td>log Pow</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Mobility in soil</td>
<td>Potential to reach groundwater</td>
</tr>
<tr>
<td></td>
<td>Stability in water</td>
<td>Stable to hydrolysis over a wide range of pH values.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>2.65</td>
</tr>
</tbody>
</table>

### 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.

**Packaging Type**

Non-Bulk, Bulk

**TDG**

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

- **Proper shipping name**: Environmentally hazardous substance, liquid, n.o.s.
- **Hazard Class**: 9
- **UN/ID No**: UN3082
- **Packing group**: III
- **Marine pollutant**: Sulfentrazone
- **Description**: UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone), 9, PGIII, Marine pollutant

**ICAO/IATA**

- **UN/ID No**: UN3082
- **Proper shipping name**: Environmentally hazardous substance, liquid, n.o.s.
- **Hazard Class**: 9
- **Packing group**: III
- **Marine pollutant**: Sulfentrazone
- **Description**: UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone), 9, PGIII, Marine pollutant

**IMDG/IMO**

- **Proper shipping name**: Environmentally hazardous substance, liquid, n.o.s.
- **Hazard Class**: 9
- **UN/ID No**: UN3082
- **Packing group**: III
- **EmS No.**: F-A, S-F
- **Marine pollutant**: Sulfentrazone
- **Description**: UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone), 9, PGIII, Marine pollutant
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</td>
<td>108-88-3</td>
<td>&lt;3</td>
<td>1.0</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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>Extremely Hazardous Substances RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td></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 8(d) - 716.120(a) - Health and Safety Reporting - List of Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>10/04/1982</td>
</tr>
</tbody>
</table>

International Regulations

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>Mexico: S*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico: TWA 50 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico: TWA 188 mg/m³</td>
</tr>
</tbody>
</table>

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
D2A Very toxic materials

16. Other information

Revision Date: 2012-01-24
Reason for revision: (M)SDS sections updated.
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FMC Corporation

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End of Material Safety Data Sheet