

**SAFETY DATA SHEET**  
**Solitaire® Herbicide**

**SDS # :** 6515-A  
**Revision date:** 2016-05-26  
**Format:** NA  
**Version** 1.03



**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier**

**Product Name** Solitaire® Herbicide

**Other means of identification**

**Product Code(s)** 6515-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)  
methanesulfonamide (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)  
  
QUINCLORAC: 3,7-dichloroquinoline-8-carboxylic acid; 3,7-dichloro-8-quinolinecarboxylic  
acid;

**Active Ingredient(s)** Sulfentrazone, Quinclorac

**Chemical Family** Triazolinones

**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)  
msdsinfo@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)

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Specific target organ toxicity (repeated exposure)	Category 2

**GHS Label elements, including precautionary statements****EMERGENCY OVERVIEW**

<p><b>Warning</b></p> <p><b>Hazard Statements</b> H332 - Harmful if inhaled H373 - May cause damage to organs through prolonged or repeated exposure</p> 
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**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

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P312 - Call a POISON CENTER or doctor 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**

Toxic to aquatic life.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****Chemical Family** Triazolinones.

Chemical name	CAS-No	Weight %
Quinclorac	84087-01-4	56.25
Sulfentrazone	122836-35-5	18.75
Kaolin	1332-58-7	1-5
Toluene	108-88-3	1-5

Synonyms are provided in Section 1.

**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 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. Do not give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed**

Symptoms of overexposure include convulsions, decreased locomotion, tearing, increased sensitivity to touch, bloody discharge from the nose and incoordination.

**Indication of immediate medical attention and special treatment needed, if necessary**

Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**

Foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Soft stream or water fog only if necessary.

**Specific Hazards Arising from the Chemical**

None known

**Explosion data****Sensitivity to Mechanical Impact**

Not sensitive.

**Sensitivity to Static Discharge**

Not sensitive.

**Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus and full protective gear.

## 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**

See Section 12 for additional Ecological Information.

**Methods for Containment**

Sweep up and shovel into suitable containers for 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.

## 7. HANDLING AND STORAGE

**Handling**

Handle in accordance with good industrial hygiene and safety practice. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

**Storage**

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

**Incompatible products**

None known

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Kaolin (1332-58-7)	TWA: 2 mg/m <sup>3</sup>	TWA: 15 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	Mexico: TWA 10 mg/m <sup>3</sup> Mexico: STEL 20 mg/m <sup>3</sup>
Toluene	TWA: 20 ppm	TWA: 200 ppm	IDLH: 500 ppm	Mexico: TWA 50 ppm

(108-88-3)		Ceiling: 300 ppm	TWA: 100 ppm TWA: 375 mg/m <sup>3</sup> STEL: 150 ppm STEL: 560 mg/m <sup>3</sup>	Mexico: TWA 188 mg/m <sup>3</sup>
<b>Chemical name</b>	<b>British Columbia</b>	<b>Quebec</b>	<b>Ontario TWAEV</b>	<b>Alberta</b>
Kaolin (1332-58-7)	TWA: 2 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup> respirable	TWA: 2 mg/m <sup>3</sup>
Toluene (108-88-3)	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m <sup>3</sup> Skin	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m <sup>3</sup> Skin

#### 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** If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.

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

**Hand Protection** Protective gloves

**Respiratory Protection** If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.

**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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Information on basic physical and chemical properties

<b>Appearance</b>	Granules
<b>Physical State</b>	Solid
<b>Color</b>	No information available
<b>Odor</b>	No information available
<b>Odor threshold</b>	No information available
<b>pH</b>	4.3
<b>Melting point/freezing point</b>	Not applicable
<b>Boiling Point/Range</b>	No information available
<b>Flash point</b>	Not applicable
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid, gas)</b>	No information available
<b>Flammability Limit in Air</b>	
<b>Upper flammability limit:</b>	No information available
<b>Lower flammability limit:</b>	No information available
<b>Vapor pressure</b>	No information available
<b>Vapor density</b>	No information available
<b>Density</b>	32 - 35.4 lb/cu ft
<b>Specific gravity</b>	No information available
<b>Water solubility</b>	No information available
<b>Solubility in other solvents</b>	No information available
<b>Partition coefficient</b>	No information available

Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, kinematic	No information available
Viscosity, dynamic	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Molecular weight	No information available
Bulk density	No information available

## 10. STABILITY AND REACTIVITY

Reactivity	None under normal use conditions.
Chemical Stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	None known
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	3110 mg/kg (rat)
LD50 Dermal	> 5000 mg/kg (rat)
LC50 Inhalation	> 2.06 mg/L (rat)

Serious eye damage/eye irritation	Mildly irritating.
Skin corrosion/irritation	Moderately irritating (rabbit).
Sensitization	Non-sensitizing

### Information on toxicological effects

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

Chronic toxicity	Quinclorac: Prolonged exposure caused decreased body weight, increased liver enzyme and focal chronic interstitial nephritis. Sulfentrazone: Prolonged exposure cause decreased hemoglobin content and hematocrit, and increased spleen weight and splenic extramedullary hematopoiesis at high doses in animal studies.
Mutagenicity	Quinclorac, Sulfentrazone: Not genotoxic in laboratory studies.
Carcinogenicity	Quinclorac, Sulfentrazone: No evidence of carcinogenicity from animal studies.
Neurological effects	Quinclorac: No neurotoxicity observed in animal studies. Sulfentrazone: Clinical signs of neurotoxicity in laboratory animals was observed at high dose levels.
Reproductive toxicity	Quinclorac: Sulfentrazone: No toxicity to reproduction in animal studies.
Developmental toxicity	Quinclorac: Not teratogenic in animal studies. 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 protoporphyrongen oxidase inhibitors. Developmental toxicity testing and results were generated for sulfentrazone with toluene present as an impurity.
STOT - single exposure	Not classified.
STOT - repeated exposure	May cause damage to organs through prolonged or repeated exposure. See listed target organs below.
Target organ effects	Liver, Kidney, Hematopoietic system
Neurological effects	Quinclorac: No neurotoxicity observed in animal studies. Sulfentrazone: Clinical signs of

neurotoxicity in laboratory animals was observed at high dose levels.  
No information available.

**Aspiration hazard**

Chemical name	ACGIH	IARC	NTP	OSHA
Toluene 108-88-3		Group 3		

ACGIH (American Conference of Governmental Industrial Hygienists)

A2 - Suspected Human Carcinogen

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 3 - Not classifiable as to its carcinogenicity to humans

NTP (National Toxicology Program)

Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

<b>Quinclorac (84087-01-4)</b>				
Active Ingredient(s)	Duration	Species	Value	Units
Quinclorac	72 h EC50	Algae	6.53	mg/L
	48 h EC50	Daphnia	29.8	mg/L
	96 h LC50	Fish	>100	mg/L
	21 d NOEC	Crustacea	50.4	mg/L

<b>Sulfentrazone (122836-35-5)</b>				
Active Ingredient(s)	Duration	Species	Value	Units
Sulfentrazone	72 h EC50	Algae	32.8	mg/L
	48 h EC50	Crustacea	60.4	mg/L
	96 h LC50	Fish	94	mg/L
	21 d NOEC	Fish	5.9	mg/L
	21 d NOEC	Crustacea	0.51	mg/L

**Persistence and degradability**

Quinclorac, Sulfentrazone: Persistent. Does not readily hydrolyze.

**Bioaccumulation**

Quinclorac, Sulfentrazone: The substance does not have a potential for bioconcentration.

**Mobility**

Quinclorac, 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

Proper Shipping Name

Environmentally hazardous substance, solid, n.o.s.

**Hazard class** 9  
**Packing Group** III  
**Marine Pollutant** Sulfentrazone.  
**Description** UN3077, Environmentally hazardous substance, solid, n.o.s. (sulfentrazone), 9, PGIII, Marine Pollutant

**ICAO/IATA**

**UN/ID no** UN3077  
**Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s.  
**Hazard class** 9  
**Packing Group** III  
**Description** UN3077, Environmentally hazardous substance, solid, n.o.s. (sulfentrazone), 9, PGIII, Marine Pollutant

**IMDG/IMO**

**UN/ID no** UN3077  
**Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s.  
**Hazard class** 9  
**Packing Group** III  
**EmS No.** F-A, S-F  
**Marine Pollutant** Sulfentrazone  
**Description** UN3077, Environmentally hazardous substance, solid, 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:

Chemical name	CAS-No	Weight %	SARA 313 - Threshold Values %
Toluene - 108-88-3	108-88-3	1-5	1.0

**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

**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):

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Formaldehyde 50-00-0	100 lb			X
Naphthalene 91-20-3	100 lb	X	X	X
Toluene 108-88-3	1000 lb	X	X	X

**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):

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Formaldehyde	100 lb	100 lb

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50-00-0	45.4 kg	
Naphthalene 91-20-3	100 lb 45.4 kg	
Toluene 108-88-3	1000 lb 454 kg	

**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**

*Harmful if swallowed or absorbed through the skin. Causes moderate eye irritation.*

**US State Regulations**

**California Proposition 65**

This product contains the following Proposition 65 chemicals.

<b>Chemical name</b>	<b>California Prop. 65</b>
Toluene - 108-88-3	Developmental

**U.S. State Right-to-Know Regulations**

<b>Chemical name</b>	<b>New Jersey</b>	<b>Massachusetts</b>	<b>Pennsylvania</b>
Kaolin 1332-58-7	X	X	X
Toluene 108-88-3	X	X	X

**International Inventories**

<b>Chemical name</b>	<b>TSCA (United States)</b>	<b>DSL (Canada)</b>	<b>EINECS/ELINC S (Europe)</b>	<b>ENCS (Japan)</b>	<b>China (IECSC)</b>	<b>KECL (Korea)</b>	<b>PICCS (Philippines)</b>	<b>AICS (Australia)</b>
Quinclorac 84087-01-4		X	X		X		X	X
Kaolin 1332-58-7	X	X	X	X	X	X	X	X
Toluene 108-88-3	X	X	X	X	X	X	X	X

**Mexico - Grade**

Moderate risk, Grade 2

<b>Chemical name</b>	<b>Carcinogen Status</b>	<b>Mexico</b>
Kaolin		Mexico: TWA 10 mg/m <sup>3</sup> Mexico: STEL 20 mg/m <sup>3</sup>
Toluene		Mexico: TWA 50 ppm Mexico: TWA 188 mg/m <sup>3</sup>

<b>Chemical name</b>	<b>Mexico - Pollutant Release and Transfer Register - Reporting Emissions for Fabrication, Process or Use - Threshold Quantities</b>	<b>Pollutant Release and Transfer Register - Reporting Emissions - Threshold Quantities</b>
Formaldehyde	100 2500 kg/yr	100 kg/yr
Toluene	1000 5000 kg/yr	1000 kg/yr



WHMIS Hazard Class                      D2B - Toxic materials



**16. OTHER INFORMATION**

NFPA	Health Hazards 2	Flammability 0	Instability 0	Special Hazards -
HMIS	Health Hazards 2*	Flammability 0	Physical hazard 0	Personal Protection X

Revision date:                                      2016-05-26  
 Reason for revision:                              Format Change

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**End of Safety Data Sheet**