

Material Safety Data Sheet

Solitare™ Herbicide

MSDS #: 6515-A

Revision Date: 2012-03-25
Version 1



This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200
And Canadian Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Solitare™ Herbicide
Formula code	6515-A
Active Ingredient(s)	Sulfentrazone, Quinclorac
Synonyms	3,7-dichloroquinoline-8-carboxylic acid; 3,7-dichloro-8-quinolinecarboxylic acid ; 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;
Recommended use:	Herbicide
Manufacturer	Emergency telephone number
FMC Corporation Agricultural Products Group 1735 Market Street Philadelphia, PA 19103 General Information: Phone: (215) 299-6000 E-Mail: msdsinfo@fmc.com	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

<u>Appearance</u>	granules
<u>Physical state</u>	solid
<u>Odor</u>	No information available.
Flammable properties	Finely dispersed particles can form explosive mixtures in air.
<u>Potential health effects</u>	
Principle Routes of Exposure	Eye contact, Skin contact, Inhalation, Ingestion.
Acute effects	
Eyes	Moderately irritating to skin.
Skin	Substance may cause slight skin irritation.
Inhalation	May cause irritation of respiratory tract. May be harmful if inhaled. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.

Ingestion

May be harmful if swallowed. May cause additional effects as listed under "Inhalation". Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic effects

Prolonged exposure may cause chronic effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous ingredients

Chemical Name	CAS-No	Weight %
Quinclorac	84087-01-4	55-65
Sulfentrazone	122836-35-5	15-25
Kaolin	1332-58-7	1-5
Sodium N-methyl-N-oleoyltaurine	137-20-2	1-5
Toluene	108-88-3	1-5

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

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

Flammable properties

Finely dispersed particles can form explosive mixtures in air.

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	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	Use a wet sweeping compound or water to prevent dust formation.
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.
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 CONTROL / PERSONAL PROTECTIONExposure guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Kaolin 1332-58-7	TWA: 2 mg/m ³	TWA: 15 mg/m ³ TWA: 5 mg/m ³	TWA: 10 mg/m ³ TWA: 5 mg/m ³	
Toluene 108-88-3	TWA: 20 ppm	TWA: 200 ppm Ceiling: 300 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m ³ STEL: 150 ppm STEL: 560 mg/m ³	Mexico: S* Mexico: TWA 50 ppm Mexico: TWA 188 mg/m ³
Chemical Name	British Columbia	Quebec	Ontario TWAEV	Alberta
Kaolin 1332-58-7	TWA: 2 mg/m ³	TWA: 5 mg/m ³	TWA: 2 mg/m ³	TWA: 2 mg/m ³
Toluene 108-88-3	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m ³ Skin	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m ³ Skin

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.
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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

Information on basic physical and chemical properties

Appearance	granules
Physical state	solid
Odor	No information available.
pH	4.3
Melting Point/Range	No information available.
Freezing point	No information available
Boiling Point/Range	Not applicable
Flash Point	Not applicable
Evaporation rate	Not applicable
Flammable properties	Finely dispersed particles can form explosive mixtures in air.
Vapor pressure	No information available
Vapor density	No information available
Density	32 - 35.4 lb/cu ft
Water solubility	No information available
Percent volatile	No information available
Partition coefficient:	Not applicable
Viscosity	No information available

10. STABILITY AND REACTIVITY

Stability	Stable.
Conditions to avoid	None known
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 effects

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	Moderately irritating to skin.
Skin contact	Slightly or non-irritating (rabbit).
LD50 Dermal	> 5000 mg/kg (Rat)
LD50 Oral	3110 mg/kg (Rat)
LC50 Inhalation:	> 2.06 mg/L (Rat)

Sensitization Non-sensitizing

Chronic effects

Chronic Toxicity	Prolonged exposure may cause chronic effects.
Carcinogenicity	Quinclorac, Sulfentrazone: Not carcinogenic.
Mutagenicity	Quinclorac, Sulfentrazone: Not mutagenic.

Reproductive toxicity	Quinclorac: No effects on reproduction in rats; In rabbits effects only at maternally toxic levels. Offspring Toxicity (sulfentrazone): LOAEL = 33 mg/kg/day for males; 40 mg/kg/day for females.
Developmental Toxicity	Quinclorac: Not teratogenic in animal studies. 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.
Target Organ Effects	Quinclorac: Kidney, Liver, Blood. Sulfentrazone: Hematopoietic System.

Chemical Name	ACGIH	IARC	NTP	OSHA	NIOSH - Target Organs
Kaolin					respiratory system, stomach
Toluene					CNS, eyes, kidneys, liver, respiratory system, skin

12. ECOLOGICAL INFORMATION

Ecotoxicity

Quinclorac (84087-01-4)				
Active Ingredient(s)	Duration	Species	Value	Units:
Quinclorac	48 h EC50	Daphnia	>100	mg/L
	EC50 96h	Algae	>100	mg/L
	96 h LC50	Fish	>100	mg/L
	LC50	Mallard duck	>5000	ppm
	LD50	Bobwhite quail	>2000	mg/kg
	LD50	Bee	>100	µg/bee

Sulfentrazone (122836-35-5)				
Active Ingredient(s)	Duration	Species	Value	Units:
Sulfentrazone	120 h LC50	Algae	31	µg/L
	48 h LC50	Aquatic organisms	60.4	mg/L
	96 h LC50	Fish	94	mg/L
	LD50 Oral	Bobwhite quail	>2250	mg/kg
	LD50 Dietary	Mallard duck	>5620	ppm

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Toluene	433 mg/L EC50 96 h (Pseudokirchneriella subcapitata) 12.5 mg/L EC50 72 h (Pseudokirchneriella subcapitata)	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		EC50 5.46 - 9.83 mg/L 48 h EC50 = 11.5 mg/L 48 h

Environmental Fate

Quinclorac (84087-01-4)		
Active Ingredient(s)	Type of Test	Result
Quinclorac	Half-life in soil	10-40 days
	Stability in water	Stable in water.

	Mobility in soil	Variable depending on soil type.
Sulfentrazone (122836-35-5)		
Active Ingredient(s)	Type of Test	Result
Sulfentrazone	Bioconcentration factor (BCF)	2
	Half-life in soil	2-18 months
	log Pow	1.5
	Mobility in soil	Potential to reach groundwater
	Stability in water	Stable to hydrolysis over a wide range of pH values.

Chemical Name	log Pow
Toluene	2.65

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.

UN/ID No

UN3077

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

Hazard Class

9

Packing group

III

Marine pollutant

Sulfentrazone

Description

UN3077, Environmentally hazardous substance, solid, n.o.s. (sulfentrazone), 9, PGIII, Marine Pollutant

IMDG/IMO

UN/ID No

UN3077

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	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

CERCLA

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Toluene	1000 lb 1 lb	

TSCA Inventory (United States of America)

Component	U.S. - TSCA (Toxic Substances Control Act) - Section 4 - Chemical Test Rules (40 CFR 799)	U.S. - TSCA (Toxic Substances Control Act) - Section 5(a)(2) - Chemicals with Significant New Use Rules (SNURs)
Toluene 108-88-3 (1-5)	40 CFR 799.5087	
Chemical Name	U.S. - TSCA (Toxic Substances Control Act) - Section 8(a) - Chemical-Specific Reporting and Recordkeeping	
Sodium N-methyl-N-oleoyltaurine	PAIR: 09/29/2006	
Component	U.S. - TSCA (Toxic Substances Control Act) - Section 8(d) - 716.120(a) - Health and Safety Reporting - List of Substances	
Sodium N-methyl-N-oleoyltaurine 137-20-2 (1-5)	12/28/1984 09/29/2006	
Toluene 108-88-3 (1-5)	10/04/1982	

International Regulations**Mexico - Grade**

Slight risk, Grade 1

Chemical Name	Carcinogen Status	Mexico
Toluene		Mexico: S* Mexico: TWA 50 ppm Mexico: TWA 188 mg/m ³

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

D2B Toxic materials



16. OTHER INFORMATION

Revision Date: 2012-03-25
Reason for revision: Initial Release.

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End of Material Safety Data Sheet