SAFETY DATA SHEET

F7214 Herbicide MUP

SDS # : 7557-3-A
Revision date: 2019-06-11
Format: NA
Version 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name F7214 Herbicide MUP

Other means of identification

Product Code(s) 7557-3-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),

, QUINCLORAC: 3,7-dichloroquinoline-8-carboxylic acid; 3,7-dichloro-8-quinolinecarboxylic acid

Active Ingredient(s) Sulfentrazone; Quinclorac

Chemical Family Triazolinones; Quinoline derivative

Recommended use of the chemical and restrictions on use

Recommended Use: Herbicide

Restrictions on Use: Use as recommended by the label.

Supplier Address

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

Emergency telephone number

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

For leak, fire, spill or accident emergencies, call:
1 800 / 424-9300 (CHEMTREC - U.S.A.)
1 703 / 741-5970 (CHEMTREC - International)
1 703 / 527-3887 (CHEMTREC - Alternate)

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
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (repeated exposure)	Category 2

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Warning

Hazard Statements
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements - Prevention
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling

Precautionary Statements - Response
P314 - Get medical advice/ attention if you feel unwell
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/ attention
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 according to label directions

Hazards not otherwise classified (HNOC)
No hazards not otherwise classified were identified.

Other Information
Harmful to aquatic life.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family Triazolinones; Quinoline derivative.

Chemical name	CAS-No	Weight %
Quinclorac	84087-01-4	5.0
Sulfentrazone	122836-35-5	1.6
Propylene glycol	57-55-6	1-10
Ethanolamine	141-43-5	1-5
Toluene	108-88-3	<1

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 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
None known.

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

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Foam. Carbon dioxide (CO_2). Dry chemical. Water spray.

Unsuitable extinguishing media
Avoid heavy hose streams.

Specific Hazards Arising from the Chemical
None known

Explosion data
Sensitivity to Mechanical Impact
No information available.
Sensitivity to Static Discharge
No information available.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus and full protective gear. Isolate fire area. Evaluate upwind.

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.

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. Keep out of waterways.

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 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
Ethanolamine (141-43-5)	STEL 6 ppm TWA: 3 ppm	TWA: 3 ppm TWA: 6 mg/m³	IDLH: 30 ppm TWA: 3 ppm TWA: 8 mg/m³ STEL: 6 ppm STEL: 15 mg/m³	Mexico: TWA 3 ppm Mexico: STEL 6 ppm Mexico: STEL 15 mg/m³
Toluene (108-88-3)	TWA: 20 ppm	TWA: 200 ppm Ceiling: 300 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m³ STEL: 150 ppm STEL: 560 mg/m³	Mexico: TWA 20 ppm
Chemical name	**British Columbia**	**Quebec**	**Ontario TWAEV**	**Alberta**
Propylene glycol (57-55-6)	-	-	TWA: 10 mg/m³ aerosol only TWA: 50 ppm aerosol and vapor TWA: 155 mg/m³ aerosol and vapor	-
Ethanolamine (141-43-5)	TWA: 3 ppm STEL: 6 ppm	TWA: 3 ppm TWA: 7.5 mg/m³ STEL: 6 ppm STEL: 15 mg/m³	TWA: 3 ppm STEL: 6 ppm	TWA: 3 ppm TWA: 7.5 mg/m³ STEL: 6 ppm STEL: 15 mg/m³
Toluene (108-88-3)	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m³ Skin	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m³ 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 Tightly fitting safety goggles.

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

Hand Protection Use protective gloves made of chemical materials such as nitrile or neoprene. Wash the outside of gloves with soap and water before reuse. Check regularly for leaks.

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

Appearance	Amber
Physical State	Liquid
Color	Amber
Odor	Mild chemical odor
Odor threshold	No information available
pH	9.02
Melting point/freezing point	Not applicable
Boiling Point/Range	No information available
Flash point	> 100 °C / > 212 °F Tag Closed Cup
Evaporation Rate	No information available
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	No information available
Vapor density	No information available
Relative density	8.65 lb/gal
Specific gravity	No information available
Water solubility	No information available
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, kinematic	12.9 cSt @ 25°C
Viscosity, dynamic	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Molecular weight	No information available
Bulk density	8.65 lb/gal

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 Heat, flames and sparks.
Incompatible materials None known.
Hazardous Decomposition Products No information available.

11. TOXICOLOGICAL INFORMATION

Product Information

LD50 Oral	> 2,000 mg/kg
LD50 Dermal	> 2,000 mg/kg
LC50 Inhalation	> 2.13 mg/L 4 hr

Serious eye damage/eye irritation Moderately irritating to the eyes.

Skin corrosion/irritation Non-irritating.
Sensitization Non-sensitizing

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Propylene glycol (57-55-6)	20000 mg/kg (Rat)	20800 mg/kg (Rabbit)	
Ethanolamine (141-43-5)	= 1720 mg/kg (Rat)	= 1 mL/kg (Rabbit) = 1000 mg/kg (Rabbit)	
Toluene (108-88-3)	= 2600 mg/kg (Rat)	= 12000 mg/kg (Rabbit)	= 12.5 mg/L (Rat) 4 h

Information on toxicological effects

Symptoms Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

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.

Aspiration hazard No information available.

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

Legend:
IARC (International Agency for Research on Cancer)
Group 3 - Not classifiable as to its carcinogenicity to humans

12. ECOLOGICAL INFORMATION

Ecotoxicity

Quinclorac (84087-01-4)				
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

Sulfentrazone (122836-35-5)				
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

Chemical name	**Toxicity to algae**	**Toxicity to fish**	**Toxicity to daphnia and other aquatic invertebrates**
Toluene 108-88-3	72 h EC50: = 12.5 mg/L (Pseudokirchneriella subcapitata) static 96 h EC50: > 433 mg/L (Pseudokirchneriella subcapitata)	96 h LC50: 11.0 - 15.0 mg/L (Lepomis macrochirus) static 96 h LC50: 14.1 - 17.16 mg/L (Oncorhynchus mykiss) static 96 h LC50: 15.22 - 19.05 mg/L (Pimephales promelas) flow-through 96 h LC50: 5.89 - 7.81 mg/L (Oncorhynchus mykiss) flow-through 96 h LC50: 50.87 - 70.34 mg/L (Poecilia reticulata) static 96 h LC50: = 12.6 mg/L (Pimephales promelas) static 96 h LC50: = 28.2 mg/L (Poecilia reticulata) semi-static 96 h LC50: = 5.8 mg/L (Oncorhynchus mykiss) semi-static 96 h LC50: = 54 mg/L (Oryzias latipes) static	48 h EC50: 5.46 - 9.83 mg/L (Daphnia magna) Static 48 h EC50: = 11.5 mg/L (Daphnia magna)
Ethanolamine 141-43-5	72 h EC50: = 15 mg/L (Desmodesmus subspicatus)	96 h LC50: 114 - 196 mg/L (Oncorhynchus mykiss) static 96 h LC50: 300 - 1000 mg/L (Lepomis macrochirus) static 96 h LC50: = 227 mg/L (Pimephales promelas) flow-through 96 h LC50: = 3684 mg/L (Brachydanio rerio) static 96 h LC50: > 200 mg/L (Oncorhynchus mykiss) flow-through	48 h EC50: = 65 mg/L (Daphnia magna)
Polyethylene glycol 25322-68-3		24 h LC50: > 5000 mg/L (Carassius auratus)	
Propylene glycol 57-55-6	96 h EC50: = 19000 mg/L (Pseudokirchneriella subcapitata)	96 h LC50: 41 - 47 mL/L (Oncorhynchus mykiss) static 96 h LC50: = 51400 mg/L (Pimephales promelas) static 96 h LC50: = 51600 mg/L (Oncorhynchus mykiss) static 96 h LC50: = 710 mg/L (Pimephales promelas)	48 h EC50: > 1000 mg/L (Daphnia magna) Static 24 h EC50: > 10000 mg/L (Daphnia magna)
Citric acid 77-92-9		96 h LC50: = 1516 mg/L (Lepomis macrochirus) static	72 h EC50: = 120 mg/L (Daphnia magna)
Magnesium Chloride 7786-30-3	72 h EC50: = 2200 mg/L (Desmodesmus subspicatus)	96 h LC50: 1970 - 3880 mg/L (Pimephales promelas) static 96 h LC50: = 4210 mg/L (Gambusia affinis) static	48 h EC50: = 140 mg/L (Daphnia magna) Static 24 h EC50: = 1400 mg/L (Daphnia magna)

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. Proper personal protective equipment, as described in Sections 7 and 8, must be worn while handling materials for waste disposal.

Contaminated Packaging Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions. Do not reuse or refill this container.

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

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, III (Marine Pollutant)

ICAO/IATA

UN/ID no	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard class	9
Packing Group	III
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Sulfentrazone), 9, III (Marine Pollutant)

IMDG/IMO

UN/ID no	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard class	9
Packing Group	III
EmS No.	F-A, S-F
Marine Pollutant	Sulfentrazone
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Sulfentrazone), 9, III (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	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
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
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 skin. Causes moderate eye irritation.
This product is toxic to marine/estuarine invertebrates.

US State Regulations

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

Chemical name	California Prop. 65
Toluene - 108-88-3	Developmental

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Propylene glycol 57-55-6	X		X
Ethanolamine 141-43-5	X	X	X
Toluene 108-88-3	X	X	X

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)
Quinclorac 84087-01-4		X	X		X		X	X
Propylene glycol	X	X	X	X	X	X	X	X

57-55-6								
Ethanolamine 141-43-5	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

Chemical name	Carcinogen Status	Mexico
Ethanolamine		Mexico: TWA 3 ppm Mexico: STEL 6 ppm Mexico: STEL 15 mg/m^3
Toluene		Mexico: TWA 20 ppm

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

CANADA

WHMIS Statement
This product has been classified in accordance with the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

WHMIS Hazard Class D2B - Toxic materials

16. OTHER INFORMATION

NFPA	**Health Hazards** 2	**Flammability** 1	**Instability** 0	**Special Hazards** -
HMIS	**Health Hazards** 2*	**Flammability** 1	**Physical hazard** 0	**Personal Protection** X

**Indicates a chronic health hazard.*

NFPA/HMIS Ratings Legend Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0

Revision date: 2019-06-11
Reason for revision: SDS sections updated

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Prepared By:

FMC Corporation

End of Safety Data Sheet