

SAFETY DATA SHEET
Zeus Prime XC Herbicide

SDS #: 6365-1-A
Revision date: 2017-06-19
Format: NA
Version 1.03



1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Zeus Prime XC Herbicide

Other means of identification

Product Code(s) 6365-1-A

Synonyms CARFENTRAZONE-ETHYL (FMC 116426): ethyl α ,2-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]-4-fluorobenzenepropanoate (CAS name); ethyl (RS)-2-chloro-3-[2-chloro-5-(4-difluoromethyl-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl)-4-fluorophenyl] propionate (IUPAC name),

, 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), Xanthan Gum

Active Ingredient(s) Carfentrazone-ethyl , Sulfentrazone

Chemical Family Triazolinones

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

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)

Carcinogenicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 2

GHS Label elements, including precautionary statements**EMERGENCY OVERVIEW****Warning****Hazard Statements**

H351 - Suspected of causing cancer

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

**Precautionary Statements - Prevention**

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

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

P280 - Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

P308 + P313 - If exposed or concerned: Get medical advice/attention

Precautionary Statements - Storage

P405 - Store locked up

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.

Chemical name	CAS-No	Weight %
Sulfentrazone	122836-35-5	31.8
Carfentrazone-ethyl	128639-02-1	3.5
Glycerin	56-81-5	5-10
Propylene glycol	57-55-6	1-5
Naphtha (petroleum), heavy aromatic	64742-94-5	1-5
Toluene	108-88-3	1-5
Naphthalene	91-20-3	<1

Synonyms are provided in Section 1.

4. FIRST AID MEASURES

Eye Contact	Hold eyes open and rinse slowly and gently with water for 15-20 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 15-20 minutes. Call a poison control center or doctor for further treatment advice.
Inhalation	Move to fresh air. If person is not breathing, contact emergency medical services, 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. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Carbon dioxide (CO ₂). Foam. Dry powder. Water spray.
Specific Hazards Arising from the Chemical	Slightly combustible. May support combustion at elevated temperatures. Thermal decomposition can lead to release of irritating and toxic gases and vapors.
Explosion data	
Sensitivity to Mechanical Impact	No information available.
Sensitivity to Static Discharge	No information available.
Protective equipment and precautions for firefighters	Wear self-contained breathing apparatus and protective suit.

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.
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.

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 PROTECTIONControl parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Glycerin (56-81-5)	-	TWA: 15 mg/m ³ TWA: 5 mg/m ³	-	Mexico: TWA 10 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: TWA 50 ppm Mexico: TWA 188 mg/m ³
Naphthalene (91-20-3)	TWA: 10 ppm	TWA: 10 ppm TWA: 50 mg/m ³	IDLH: 250 ppm TWA: 10 ppm TWA: 50 mg/m ³ STEL: 15 ppm STEL: 75 mg/m ³	Mexico: TWA 10 ppm Mexico: TWA 50 mg/m ³ Mexico: STEL 15 ppm Mexico: STEL 75 mg/m ³
Chemical name	British Columbia	Quebec	Ontario TWAEV	Alberta
Glycerin (56-81-5)	TWA: 10 mg/m ³ TWA: 3 mg/m ³	TWA: 10 mg/m ³	-	TWA: 10 mg/m ³
Propylene glycol (57-55-6)	-	-	TWA: 10 mg/m ³ aerosol only TWA: 50 ppm aerosol and vapor TWA: 155 mg/m ³ aerosol and vapor	-
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
Naphthalene (91-20-3)	TWA: 10 ppm STEL: 15 ppm Skin	TWA: 10 ppm TWA: 52 mg/m ³ STEL: 15 ppm STEL: 79 mg/m ³	TWA: 10 ppm STEL: 15 ppm Skin	TWA: 10 ppm TWA: 52 mg/m ³ STEL: 15 ppm STEL: 79 mg/m ³ 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 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

Appearance	Viscous
Physical State	Liquid
Color	White to off white Yellow-orange
Odor	Solvent
Odor threshold	No information available
pH	4.4
Melting point/freezing point	123 °C
Boiling Point/Range	No information available
Flash point	> 91 °C / 196 °F Seta 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	1x10 ⁻⁹ mm Hg at 25°C
Vapor density	No information available
Density	9.99 lb/gal
Specific gravity	No information available
Water solubility	Dispersible in water
Solubility in other solvents	No information available
Partition coefficient	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.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Excessive heat. Heat, flames and sparks.
Incompatible materials	None known.
Hazardous Decomposition Products	Carbon oxides (CO _x), Nitrogen oxides (NO _x), Sulfur oxides, Hydrogen chloride, Hydrogen fluoride.

11. TOXICOLOGICAL INFORMATION

Product Information

LD50 Oral	5000 mg/kg (rat)
LD50 Dermal	> 5050 mg/kg (rat)
LC50 Inhalation	> 2.27 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

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.

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

Chronic toxicity Carfentrazone-ethyl: Long-term exposure caused hematotoxicity and deposit of porphyrin in the liver in animal studies.

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, Carfentrazone-ethyl : Not genotoxic in laboratory studies.
Carcinogenicity Sulfentrazone, Carfentrazone-ethyl : 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 Carfentrazone-ethyl : Not neurotoxic.
Developmental toxicity Sulfentrazone, Carfentrazone-ethyl : No toxicity to reproduction 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 protoporphyrinogen oxidase inhibitors. Developmental toxicity testing and results were generated for sulfentrazone with toluene present as an impurity.

STOT - single exposure Carfentrazone-ethyl : Not teratogenic in animal studies.
STOT - repeated exposure Not classified.
May cause damage to organs through prolonged or repeated exposure: See listed target organs below.

Target organ effects Sulfentrazone: Hematopoietic system.
Neurological effects Sulfentrazone: Clinical signs of neurotoxicity in laboratory animals was observed at high dose levels

Aspiration hazard Carfentrazone-ethyl : Not neurotoxic.
No information available.

Chemical name	ACGIH	IARC	NTP	OSHA
Toluene 108-88-3		Group 3		
Naphthalene 91-20-3	A3	Group 2B	Reasonably Anticipated	X

Legend:

ACGIH (American Conference of Governmental Industrial Hygienists)
A3 - Animal Carcinogen
IARC (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
Group 3 - Not classifiable as to its carcinogenicity to humans
NTP (National Toxicology Program)
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

12. ECOLOGICAL INFORMATION

Ecotoxicity

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

Carfentrazone-ethyl (128639-02-1)				
Active Ingredient(s)	Duration	Species	Value	Units
Carfentrazone-ethyl	72 h EC50	Algae	0.012	mg/L
	96 h LC50	Fish	1.6	mg/L
	48 h LC50	Daphnia	>9.8	mg/L
	96 h NOEC	Algae	1.0	µg/L
	21 d NOEC	Fish	0.0187	mg/L
	21 d NOEC	Crustacea	0.22	mg/L

Persistence and degradability Sulfentrazone: Persistent. Does not readily hydrolyze. Not readily biodegradable.
Carfentrazone-ethyl : Non-persistent. Readily hydrolyzed. Not readily biodegradable.

Bioaccumulation Sulfentrazone, Carfentrazone-ethyl : The substance does not have a potential for bioconcentration.

Mobility Sulfentrazone: Immobile. Not expected to reach groundwater.
Carfentrazone-ethyl : Not relevant.

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

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

IMDG/IMO

UN/ID no	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard class	9

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Packing Group III
EmS No. F-A, S-F
Marine Pollutant Description Sulfentrazone, Carfentrazone-ethyl
 UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone, carfentrazone-ethyl), 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
Naphthalene - 91-20-3	91-20-3	<1	0.1

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
Naphthalene 91-20-3	100 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	
Methyl ethyl ketone 78-93-3	5000 lb 2270 kg	
Naphthalene 91-20-3	100 lb 45.4 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

*Causes moderate eye irritation. Harmful if inhaled, swallowed, or absorbed through skin
 This pesticide is toxic to algae, marine/estuarine invertebrates, and moderately toxic to fish*

US State Regulations

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California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical name	California Prop. 65
Toluene - 108-88-3	Developmental
Naphthalene - 91-20-3	Carcinogen

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Glycerin 56-81-5	X	X	X
Propylene glycol 57-55-6	X		X
Toluene 108-88-3	X	X	X
Naphthalene 91-20-3	X	X	X

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINC S (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)
Carfentrazone-ethyl 128639-02-1					X			
Glycerin 56-81-5	X	X	X	X	X	X	X	X
Propylene glycol 57-55-6	X	X	X	X	X	X	X	X
Naphtha (petroleum), heavy aromatic 64742-94-5	X	X	X		X	X	X	X
Toluene 108-88-3	X	X	X	X	X	X	X	X
Naphthalene 91-20-3	X	X	X	X	X	X	X	X

Mexico - Grade

Moderate risk, Grade 2

Chemical name	Carcinogen Status	Mexico
Glycerin		Mexico: TWA 10 mg/m ³
Toluene		Mexico: TWA 50 ppm Mexico: TWA 188 mg/m ³
Naphthalene		Mexico: TWA 10 ppm Mexico: TWA 50 mg/m ³ Mexico: STEL 15 ppm Mexico: STEL 75 mg/m ³

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

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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 D2A - Very 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

Revision date: 2017-06-19
Reason for revision: (M)SDS sections updated

Disclaimer

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End of Safety Data Sheet