SAFETY DATA SHEET
AUTHORITY® IMI HERBICIDE

SDS # : 6354-1-A
Revision date: 2021-02-12
Format: NA
Version 1.03

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name AUTHORITY® IMI HERBICIDE

Other means of identification

Product Code(s) 6354-1-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),

, IMAZETHAPYR: N-[1-[(6-chloropyridin-3-yl)methyl]-4,5-dihydroimidazol-2-yl]nitramide

Active Ingredient(s) Sulfentrazone, Imazethapyr

Chemical Family Triazolinones, Imidazolinone

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)
SDS-Info@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
Specific target organ toxicity (repeated exposure)	Category 2

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Warning

Hazard Statements
H332 - Harmful if inhaled
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements - Prevention
P271 - Use only outdoors or in a well-ventilated area
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
Very toxic to aquatic life.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family Triazolinones, Imidazolinone.

Chemical name	CAS-No	Weight %
Sulfentrazone	122836-35-5	33.3
Glycerin	56-81-5	5-10
Imazethapyr	81335-77-5	6.7
Toluene	108-88-3	1-5
Propylene glycol	57-55-6	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 15-20 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. Do not 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.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Small Fire Dry chemical. Carbon dioxide (CO_2).

Large Fire Water spray. Foam.

Unsuitable extinguishing media Avoid heavy hose streams.

Specific Hazards Arising from the Chemical No information available

Hazardous Combustion Products Carbon oxides (COx), Nitrogen oxides (NOx), Sulfur oxides, Hydrogen chloride, Hydrogen fluoride.

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. Wear suitable protective clothing, gloves and eye/face protection. Remove all sources of ignition. 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.

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 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.

Packaging material Must only be kept in original packaging.

Incompatible products None known

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Glycerin (56-81-5)	-	TWA: 15 mg/m³ TWA: 5 mg/m³	-	Mexico: TWA 10 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**
Glycerin (56-81-5)	TWA: 10 mg/m³ TWA: 3 mg/m³	TWA: 10 mg/m³	-	TWA: 10 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
Propylene glycol (57-55-6)	-	-	TWA: 10 mg/m³ aerosol only TWA: 50 ppm aerosol and vapor TWA: 155 mg/m³ aerosol and vapor	-

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 Minimize skin contamination by following good industrial hygiene practices.

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 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	Off-white Liquid
Physical State	Liquid
Color	Off-white
Odor	Low Alcohol
Odor threshold	No information available
pH	3.36
Melting point/freezing point	Not applicable
Boiling Point/Range	No information available
Flash point	76.6 °C / 169.88 °F
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	1.2 g/mL @ 25°C
Specific gravity	No information available
Water solubility	Soluble 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 Heat, flames and sparks.

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	5000 mg/kg (rat)
LD50 Dermal	> 5000 mg/kg (rat)
LC50 Inhalation (dust)	> 2.09 mg/L 4 hr (rat)

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

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation (vapor)
Glycerin	= 12600 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 570 mg/m³ (Rat) 1 h

(56-81-5)			
Imazethapyr (81335-77-5)	> 5 g/kg (Rat)	> 2000 mg/kg (Rabbit)	
Toluene (108-88-3)	= 2600 mg/kg (Rat)	= 12000 mg/kg (Rabbit)	= 12.5 mg/L (Rat) 4 h
Propylene glycol (57-55-6)	20000 mg/kg (Rat)	20800 mg/kg (Rabbit)	

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. Acute poisoning from ingestion of large quantities of liquid imidazolinone herbicide has resulted in hypotension, pulmonary dysfunction, oral mucosal and gastrointestinal irritation, leukocytosis, metabolic acidosis, and transient liver and renal dysfunction. Imidazolinone herbicides are CNS depressants, causing impaired consciousness and coma in some cases. Nausea and intense vomiting shortly following ingestion is common, and diarrhea may occur. Severe symptoms have included impairment of consciousness and respiratory distress requiring intubation. Decreased blood pressure may occur following excessive doses. Mucous membranes may become ulcerated following ingestions or splashes due to the corrosive action of imidazolinone. Aspiration pneumonitis is a common clinical occurrence following ingestions.

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

Chronic toxicity 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, Imazethapyr: Not genotoxic in laboratory studies.

Carcinogenicity Sulfentrazone, Imazethapyr: 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 Sulfentrazone, Imazethapyr: No toxicity to reproduction in animal studies.

Developmental toxicity 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.

Imazethapyr: Not teratogenic in animal studies.

STOT - single exposure Not classified.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Target organ effects Sulfentrazone: Hematopoietic system.

Neurological effects 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		

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

12. ECOLOGICAL INFORMATION

Ecotoxicity

Sulfentrazone (122836-35-5)				
Active Ingredient(s)	Duration	Species	Value	Units
	96 h LC50	Onchorhyncus mykiss	> 120	mg/L
	99 d NOAEC	Onchorhyncus mykiss	2.95	mg/L

	48 h EC50	Daphnia magna	60.4	mg/L
	21 d NOAEC	Daphnia magna	0.2	mg/L
	120 h EC50	Pseudokirchneriella subcapitata	0.031	mg/L
	120 h EC50	Navivula pelliculosa	0.042	mg/L
	14-day EC50	Lemna gibba (duckweed)	0.0288	mg/L
	14-d NOAEL	Lemna gibba (duckweed)	0.019	mg/L

Imazethapyr (81335-77-5)				
Active Ingredient(s)	Duration	Species	Value	Units
Imazethapyr	96 h LC50	Fish	411.47	mg/L
	EC50 96h	Algae	389.2	mg/L
	LD50 Oral	Bobwhite quail	2,200	mg/kg
	LD50 Oral	Mallard duck	2,100	mg/kg
	LD50	Bee	>100	µg/bee

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)
Sulfentrazone 122836-35-5	32.6	94 mg/L&5.9	60.4 mg/L&0.51
Ammonium hydroxide 1336-21-6		96 h LC50: = 8.2 mg/L (Pimephales promelas)	48 h EC50: = 0.66 mg/L (Daphnia pulex) 48 h EC50: = 0.66 mg/L (water flea)
Polyethylene glycol 25322-68-3		24 h LC50: > 5000 mg/L (Carassius auratus)	
Cyclomethicone 556-67-2		96 h LC50: > 1000 mg/L (Lepomis macrochirus) 96 h LC50: > 500 mg/L (Brachydanio rerio)	24 h EC50: = 25.2 mg/L (Daphnia magna)
Glycerin 56-81-5		96 h LC50: 51 - 57 mL/L (Oncorhynchus mykiss) static	24 h EC50: > 500 mg/L (Daphnia magna)
Magnesium Chloride 7786-30-3	72 h EC50: > 82.7 mg/L (Pseudokirchneriella subcapitata)	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)
Methyl ethyl ketone 78-93-3		96 h LC50: 3130 - 3320 mg/L (Pimephales promelas) flow-through	48 h EC50: 4025 - 6440 mg/L (Daphnia magna) Static 48 h EC50: = 5091 mg/L (Daphnia magna) 48 h EC50: > 520 mg/L (Daphnia magna)

Persistence and degradability Sulfentrazone: Persistent. Does not readily hydrolyze. Not readily biodegradable.

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

Mobility Sulfentrazone: Immobile. Not expected to reach groundwater.

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 containers and packages

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 49 CFR Parts 100 through 185, unless shipped in bulk packaging. The classification below pertains to the shipment in bulk packaging [(>119 gal, liquid) or (882 lb, solid)].

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

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.(sulfentrazone)
Hazard class	9
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.(sulfentrazone)
Hazard class	9
Packing Group	III
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone), 9, PGIII, Marine pollutant

IMDG/IMO

UN/ID no	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.(sulfentrazone)
Hazard class	9
Packing Group	III
EmS No.	F-A, S-F
Environmental Hazards	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:

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

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Toluene 108-88-3	1000 lb	X	X	X
Ammonium hydroxide 1336-21-6	1000 lb			X

CERCLA

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Toluene 108-88-3	1000 lb 454 kg	
Ammonium hydroxide 1336-21-6	1000 lb 454 kg	
Methyl ethyl ketone 78-93-3	5000 lb 2270 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 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
Glycerin 56-81-5	X	X	X
Toluene 108-88-3	X	X	X
Propylene glycol 57-55-6	X		X

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)
Glycerin 56-81-5	X	X	X	X	X	X	X	X
Imazethapyr 81335-77-5					X			
Toluene 108-88-3	X	X	X	X	X	X	X	X
Propylene glycol 57-55-6	X	X	X	X	X	X	X	X

CANADA
Not applicable

16. OTHER INFORMATION

NFPA	**Health Hazards** 1	**Flammability** 2	**Instability** 0	**Special Hazards** -
HMIS	**Health Hazards** 1*	**Flammability** 2	**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: 2021-02-12
Reason for revision: SDS sections updated.

Disclaimer
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Prepared By:
FMC Corporation

End of Safety Data Sheet