

MATERIAL SAFETY DATA SHEET

AUTHORITY™ FIRST DF HERBICIDE



MSDS Ref. No.: F18-25-7
Date Approved: 12/06/2007
Revision No.: 2

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the EC directive, 2001/58/EC and other regulatory requirements. The information contained herein is for the concentrate as packaged, unless otherwise noted.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	AUTHORITY™ FIRST DF HERBICIDE
PRODUCT CODE:	6150
ACTIVE INGREDIENT(S):	Sulfentrazone*; Cloransulam-methyl**
CHEMICAL FAMILY:	Aryl triazolinone*; Triazolopyrimidine sulfonanilide**
MOLECULAR FORMULA:	C ₁₁ H ₁₀ Cl ₂ F ₂ N ₄ O ₃ S (sulfentrazone); C ₁₅ H ₁₃ ClFN ₅ O ₅ S (cloransulam-methyl)
SYNONYMS:	FMC 97285; F6285; CAS: N-[2,4-dichloro-5-[4-difluoromethyl]-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]phenyl]methanesulfonamide; IUPAC: N-[2,4-dichloro-5-(4-difluoromethyl-3-methyl-5-oxo-4,5-dihydro-[1,2,4]triazol-1-yl)phenyl]methane sulfonamide*; N-(2-carbomethoxy-6-chlorophenyl)-5-ethoxy-7-fluoro(1,2,4)triazolo-[1,5-c]pyrimidine-2-sulfonamide**

Information for Sulfentrazone*; Information for Cloransulam-methyl**

MANUFACTURER

FMC CORPORATION
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msdsinfo@fmc.com (Email - General Information)

EMERGENCY TELEPHONE NUMBERS

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

For leak, fire, spill, or accident emergencies, call:
(800) 424-9300 (CHEMTREC - U.S.A. & Canada)
(703) 527-3887 (CHEMTREC - Collect - All Other Countries)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Tan granules, with a musty odor.
- Slightly combustible. May support combustion at elevated temperatures. Finely dispersed particles can form explosive mixtures in air.
- Thermal decomposition and burning may form toxic by-products.
- For large exposures or fire, wear personal protective equipment.
- Slightly toxic to fish and aquatic organisms. Keep out of drains and water courses.

POTENTIAL HEALTH EFFECTS: Effects from overexposure result from either swallowing, inhaling or coming into contact with the eyes or skin. Symptoms of overexposure may include convulsions, tremors, increased sensitivity to touch and sound, labored breathing, decreased locomotion, tearing, nasal discharge and incoordination.

MEDICAL CONDITIONS AGGRAVATED: None presently known.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Sulfentrazone	122836-35-5	62.1	None	Not classified
Cloransulam-methyl	147150-35-4	7.9	None	Not classified
Surfactant Blend		<17.51	None	Not classified
Toluene	108-88-3	<4.13	203-625-9	R11-38-48/20-63-65-67; S2-36/37-46-62
Silica, quartz	14808-60-7	<1	238-878-4	Not classified

4. FIRST AID MEASURES

EYES: Flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

SKIN: Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

INGESTION: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: This product has low oral, dermal and inhalation toxicity. It is minimally irritating to the eyes and slightly irritating to the skin. This product contains a granular material (clay) that may cause mechanical irritation to the eyes. This product also contains toluene which can produce a severe pneumonitis if aspirated during vomiting. Consideration should be given to gastric lavage with an endotracheal tube in place. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Foam, CO₂ or dry chemical. Soft stream water fog only if necessary. Contain all runoff.

FIRE / EXPLOSION HAZARDS: Slightly combustible. May support combustion at elevated temperatures. Finely dispersed particles can form explosive mixtures in air.

FIRE FIGHTING PROCEDURES: Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases or vapors generated.

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Isolate and post spill area. Wear protective clothing and personal protective equipment as prescribed in Section 8, "Exposure Controls/Personal Protection". Keep unprotected persons and animals out of the area.

Keep material out of lakes, streams, ponds and sewer drains. Large spills should be covered to prevent dispersal. For dry material, use a wet sweeping compound or water to prevent the formation of dust. If water is used, prevent runoff or dispersion of excess liquid by diking and absorbing with a non-combustible absorbent such as clay, sand or soil. Vacuum, shovel or pump all waste material, including absorbent, into a drum and label contents for disposal.

To clean and neutralize spill area, tools and equipment, wash with a suitable solution of caustic or soda ash, and an appropriate alcohol (i.e., methanol, ethanol or isopropanol). Follow this by washing with a strong soap and water solution. Absorb, as above, any excess liquid and add to the drums of waste already collected. Repeat if necessary. Dispose of drummed waste according to the method outlined in Section 13, "Disposal Considerations".

7. HANDLING AND STORAGE

HANDLING AND STORAGE: Store in a cool, dry, well-ventilated place. Do not use or store near heat, open flame or hot surfaces. Store in original containers only. Keep out of reach of children and animals. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Cloransulam-methyl			3 mg/m ³ (TWA)
Toluene	50 ppm (TWA) (skin)	200 ppm (PEL) 300 ppm (STEL)	
Silica, quartz	0.025 mg/m ³ (8-hour TWA) (respirable fraction)	0.1 mg/m ³ (8-hour TWA) (respirable dust) 0.3 mg/m ³ (8-hour TWA) (total dust)	

ENGINEERING CONTROLS: No open flames. Prevent deposition of dust; use closed system, consider use of dust explosion-proof electrical equipment and lighting. Use local exhaust at all process locations where dust may be emitted. Ventilate all transport vehicles prior to unloading.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: For dust exposure, wear chemical protective goggles or a face shield.

RESPIRATORY: For dust exposures wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator, which is approved for pesticides (U.S. NIOSH/MSHA, EU CEN or comparable certification organization). Respirator use and selection must be based on airborne concentrations.

PROTECTIVE CLOTHING: Depending upon concentrations encountered, wear coveralls or long-sleeved uniform and head covering. For larger exposures as in the case of spills, wear full body cover barrier suit, such as a PVC suit. Leather items - such as shoes, belts and watchbands - that become contaminated should be removed and destroyed. Launder all work clothing before reuse (separately from household laundry).

GLOVES: Wear chemical protective gloves made of materials such as butyl rubber, nitrile or neoprene. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

WORK HYGIENIC PRACTICES: 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 at the end of the workday.

COMMENTS:

Personal protective recommendations for mixing or applying this product are prescribed on the product label. Information stated above provides useful, additional guidance for individuals whose use or handling of this product is not guided by the product label.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Musty
APPEARANCE:	Tan granules
DENSITY / WEIGHT PER VOLUME:	(Bulk) 35 - 42 lb/cu ft.
MOLECULAR WEIGHT:	387.19 (sulfentrazone); 430 (cloransulam-methyl)
pH:	6 - 8 (5% suspension)
SOLUBILITY IN WATER:	Disperses

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Excessive heat and fire.
STABILITY:	*Stable; **Decomposes at 216°C
POLYMERIZATION:	Will not occur
INCOMPATIBLE MATERIALS:	Excessive heat and fire. Cloransulam-methyl: Avoid contact with oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS:	* Carbon monoxide, carbon dioxide, nitrogen oxides, sulfur oxides, hydrogen chloride, hydrogen fluoride. ** If product is involved in a fire, oxides of nitrogen, hydrogen chloride, hydrogen fluoride, and oxides of sulfur may be formed, along with carbon monoxide and carbon dioxide.

COMMENTS: * Information for Sulfentrazone; ** Information for Cloransulam-methyl

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Minimally irritating (rabbit)

SKIN EFFECTS: Slightly irritating (rabbit)

DERMAL LD₅₀: > 5,000 mg/kg (rabbit)

ORAL LD₅₀: 2,504 mg/kg (rat)

INHALATION LC₅₀: > 4.9 mg/l (4 h) (rat)

SENSITIZATION: This product was non-sensitizing to the skin in laboratory studies.

ACUTE EFFECTS FROM OVEREXPOSURE: This product has low oral, dermal and inhalation toxicity. It is minimally irritating to the eyes and slightly irritating to the skin. Signs of toxicity in laboratory animals with Sulfentrazone included clonic convulsions, tremors, recumbency, splayed limbs and decreased locomotion. Effects observed in laboratory animals after acute inhalation of toluene included mucous membrane irritation, motor incoordination, prostration, changes in respiratory rate, changes in serum and blood enzyme activities, elevated blood glucose and packed cell volume, decreased body weight and death. Vomiting after ingestion of this product may cause aspiration of toluene into the lungs, which may result in fatal pulmonary edema.

CHRONIC EFFECTS FROM OVEREXPOSURE: No data available for the formulation. Sulfentrazone was not carcinogenic in lifetime feeding studies with laboratory animals, nor was it found to be mutagenic in a battery of tests. In a reproduction study, sulfentrazone produced adverse effects on the growth and survival of the offspring, decreased male fertility and oligospermia at 25 mg/kg/day, and 35 mg/kg/day. Sulfentrazone was found to be fetotoxic in oral and dermal developmental toxicity studies; the fetal NOELS were 10 mg/kg/day and 100 mg/kg/day, respectively. At labeled use rates and practices of mixing and applying, expected exposure to farm workers is at least one hundred times lower than the doses that produced effects in laboratory animals. In animal studies, Cloransulam-methyl was not found to be carcinogenic, teratogenic or to cause reproductive effects. In-vitro and a Chronic exposure to toluene may cause headaches, dizziness, loss of sensations or feelings (such as numbness), and liver and kidney damage. Inhalation of toluene vapors at high doses have also resulted in an increased incidence of malformations and decreased fetal weight in laboratory animals. Repeated overexposure to crystalline silica for extended periods has caused acute silicosis. The International Agency for Research on Cancer (IARC) has classified crystalline silica, inhaled in the form of quartz or cristobalite from occupational sources, as carcinogenic to humans (Group 1). The National Toxicology Program (NTP) has classified respirable crystalline silica (quartz, cristobalite and tridymite) as "reasonably anticipated to be carcinogenic". The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that silica quartz is a suspected human carcinogen (A2 - limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals with relevance to humans).

CARCINOGENICITY:

Chemical Name	IARC	NTP	OSHA	Other
Silica, quartz	1	Known Carcinogen	Not listed	(ACGIH) A2

12. ECOLOGICAL INFORMATION

No data available for the formulation. Data presented below are based on the active ingredients.

ENVIRONMENTAL DATA: Sulfentrazone is stable in soil (half-life = 18 months). In water, sulfentrazone is stable to hydrolysis over the pH range of 5 to 9; however, it will readily undergo photolysis (half-life < 0.5 day). Sulfentrazone has a low affinity for organic matter ($K_{oc} = 43$), but is mobile only in soils with high sand content. The potential for sulfentrazone to bioaccumulate is very low, having a Log Pow of 1.48, and a bioconcentration factor of 1.1 - 2.0. Cloransulam-methyl has a measured Log Pow of 1.21. Bioconcentration potential is low ($BCF < 100$ or Log Pow < 3).

ECOTOXICOLOGICAL INFORMATION: Sulfentrazone:
Fish and aquatic arthropods: LC_{50} values range from 60.4 mg/L to > 130 mg/L (slightly toxic)
Upland game birds: $LD_{50} > 2250$ mg/kg (oral, low toxicity)

Cloransulam-methyl:
Material is slightly toxic to aquatic organisms on an acute basis (LC_{50} between 10 and 100 mg/L in most sensitive species).

$LC_{50} > 154$ mg/L (bluegill)
 $LC_{50} > 86$ mg/L (rainbow trout)
 $LC_{50} = 98$ mg/L (water flea)
 $LC_{50} > 121$ mg/L (grass shrimp)
 $LC_{50} > 121$ mg/L (tidewater silverside)
 $EC_{50} > 111$ mg/L (shell deposition inhibition in eastern oyster)
MATC (maximum acceptable toxicant concentration) = 31 mg/L (water flea)
Material is practically non-toxic to birds on an acute basis ($LD_{50} > 2000$ mg/kg)
 $LD_{50} > 2200$ (oral, bobwhite)
 $EC_{50} = 3.5$ µg/L (growth inhibition, green alga)
 $EC_{50} = 1.8$ mg/L (growth inhibition, diatom)
 $EC_{50} = 3.6$ mg/L (growth inhibition, marine diatom)
 $EC_{50} = 12$ µg/L (growth inhibition, blue-green alga)
 $EC_{50} = 3.4$ µg/L (growth inhibition, duckweed)

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Open dumping or burning of this material or its packaging is prohibited. If spilled material cannot be disposed of by use according to label instructions, an acceptable method of disposal is to incinerate in accordance with local, state and national environmental laws, rules, standards and regulations. However, because acceptable methods of disposal may vary by location and regulatory requirements may change, the appropriate agencies should be contacted prior to disposal.

EMPTY CONTAINER: Completely empty package into application equipment. Then dispose of empty package in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PACKAGING TYPE: Non-Bulk

ADDITIONAL INFORMATION: This material is not a hazardous material as defined by US Department of Transportation at 49 CFR Parts 100 through 185.

PACKAGING TYPE: Bulk

PROPER SHIPPING NAME: Environmentally hazardous substance, solid, n.o.s.

TECHNICAL NAME(S): Toluene

PRIMARY HAZARD CLASS / DIVISION: 9

UN/NA NUMBER: UN 3077

PACKING GROUP: III

LABEL(S): 9

PLACARD(S): 9

MARKING(S): 3077

ADDITIONAL INFORMATION: Toluene is in an "RQ" quantity when this material meets or exceeds 24390 pounds per bulk package.

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PACKAGING TYPE: Non-Bulk

ADDITIONAL INFORMATION: This material is not a dangerous good as defined by the International Maritime Dangerous Goods Code.

ADR - EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD

PACKAGING TYPE: Non-Bulk

PROPER SHIPPING NAME: Environmentally hazardous substance, solid, n.o.s.

TECHNICAL NAME(S): Cloransulam-methyl

PRIMARY HAZARD CLASS / DIVISION: 9

CLASSIFICATION CODE: M7

UN/NA NUMBER: UN3077

PACKING GROUP: III
HAZARD IDENTIFICATION NUMBER: 90
MARINE POLLUTANT: Cloransulam-methyl
LABEL(S): 9
MARKING(S): UN 3077
ADDITIONAL INFORMATION: This material is toxic to algae.

**INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) /
INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)**

PACKAGING TYPE: Non-Bulk
ADDITIONAL INFORMATION: This material is not a dangerous good as defined in ICAO and the International Air Transport Association (IATA) Dangerous Goods Regulations.

OTHER INFORMATION:
HARMONIZED SYSTEM NUMBERS:
Import to the U.S.A.: 3808.93.1500
Export from the U.S.A.: 3808.93.0000

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):
Not listed

SECTION 311 HAZARD CATEGORIES (40 CFR 370):
Immediate, Delayed

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):
The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.:
None

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):
This product contains the following ingredients subject to Section 313 reporting requirements:
Toluene

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)**CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):**

Listed

<u>Chemical Name</u>	<u>RQ</u>
Toluene	1,000 lb

FEDERAL INSECTICIDE FUNGICIDE RODENTICIDE ACT

U.S. EPA Signal Word: CAUTION

INTERNATIONAL LISTINGS

Australian Hazard Code: 2Z

HAZARD, RISK AND SAFETY PHRASE DESCRIPTIONS:Toluene, (Index #601-021-00-3):

EC Symbols:	F	(Highly Flammable)
	Xi	(Irritant)
	Xn	(Harmful)
EC Risk Phrases:	R11	(Highly flammable)
	R38	(Irritating to skin)
	R48/20	(Harmful: danger of serious damage to health by prolonged exposure through inhalation)
	R63	(Possible risk of harm to the unborn child)
	R65	(Harmful: may cause lung damage if swallowed.)
	R67	(Vapors may cause drowsiness and dizziness.)
EC Safety Phrases:	S2	(Keep out of the reach of children.)
	S36/37	(Wear suitable protective clothing and gloves.)
	S46	(If swallowed, seek medical advice immediately and show this container or label.)
	S62	(If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.)

16. OTHER INFORMATION**REVISION SUMMARY:**

This MSDS replaces Revision #1, dated November 30, 2006.

Changes in information are as follows:

Section 1 (Product and Company Identification)

Section 8 (Exposure Controls / Personal Protection)

Section 11 (Toxicological Information)

Section 14 (Transport Information)

Section 15 (Regulatory Information)

Section 16 (Other Information)

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