



FMC "Planting Life Together"
MATERIAL SAFETY DATA SHEET

MSDS #: 1466-12-A
Revision date: 2015-10-26
Version 2

BORAL 480 SC

Recommended Use: Herbicide

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	BORAL 480 SC
Formula code	001466
Active Ingredient(s)	Sulfentrazone
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)
Formula	C ₁₁ H ₁₀ Cl ₂ F ₂ N ₄ O ₃ S (Sulfentrazone)
Chemical Family	Triazolinones
Registrant	FMC Agroquímica de México, S. de R.L. de C.V. Av. Vallarta No. 6503, Local A1-6, Col. Cd. Granja, 45010 Zapopan, Jalisco.
Distributor	FMC Agroquímica de México, S. de R.L. de C.V.
Emergency telephone number	In case of intoxication call emergency numbers SINTOX (poison control center): 01-800-00-928-00; 01 (55) 5611 2634 and 01 (55) 5598 6659, 24 hour service 365 days a year.
Federal Transport Police	062
Fire brigade	068
Red Cross	065
Civil Protection	01 800 004 1300
PROFEPA [Federal Attorney for Environmental Protection]	01 800 776 3372
SETIQ [Emergency Transportation System for the Chemical Industry]	From anywhere in the Mexican Republic: 01 800 002 1400 (24 hour) In Mexico City and the Metropolitan area: 01 (55) 5559 1588
In case of spills call COTRA (Committee on Transport and Storage):	045 55 4194 0157
Green Angels (if there are injured people)	078

2. HAZARDS IDENTIFICATION

<u>Appearance</u>	Off-white Liquid
<u>Physical State</u>	Liquid
<u>Odor</u>	Low Alcohol
<u>Flash point</u>	> 94 °C / > 201 °F

Physical or Chemical Hazards**Acute Effects****Eyes**

May cause slight irritation.

Skin

Substance may cause slight skin irritation.

Inhalation

May cause irritation of respiratory tract. May cause drowsiness and dizziness.

Ingestion

May cause central nervous system depression. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects

See Section 11 for additional Toxicological Information.

3. COMPOSITION/INFORMATION ON INGREDIENTS**Hazardous ingredients**

Chemical name	CAS-No	Weight %
Sulfentrazone	122836-35-5	40
Propylene glycol	57-55-6	5-10
Toluene	108-88-3	1-5

Exposure Guidelines

See Section 8 "Exposure Controls/Personal Protection" for specific details.

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 person from contaminated area to fresh air. Seek medical attention immediately. If person is not breathing, give artificial respiration, preferably by mouth-to-mouth, if possible.

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.

Notes to Physician

In case of intoxication call emergency numbers SINTOX (poison control center): 01-800-00-928-00; 01 (55) 5611 2634 and 01 (55) 5598 6659, 24 hour service 365 days a year.

5. FIRE-FIGHTING MEASURES**Flash point**

> 94 °C / > 201 °F

Method

Tag Closed Cup

Sensitivity to Mechanical Impact

Not applicable

Sensitivity to Static Discharge

Not applicable

Suitable Extinguishing MediaCarbon dioxide (CO₂). Foam. Dry powder. Water spray.**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Hazardous Decomposition Products

Carbon oxides (COx), Nitrogen oxides (NOx), Sulfur oxides, Hydrogen chloride, Hydrogen fluoride

Protective equipment and precautions for firefighters

Wear self-contained breathing apparatus and protective suit

NFPA

Health Hazards	1
Flammability	1
Stability	0
Special Hazards	-

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Identify the substance from a safe place. Do not inhale, do not touch and do not walk through spilled material. Isolate the area to ensure sufficient breadth to individuals and to facilitate the work control and cleaning. Keep away from unauthorized personnel. Call the emergency phones COTRA (Committee on Transport and Storage) 045 55 4194 0157 and wait for help. Stay upwind and out of low areas. Always have a fire extinguisher available, preferably dry chemical (PQS).
Environmental Precautions	Keep people and animals away and upstream of the spill / leak. Keep the material out of lakes, streams, ponds and drains.
Methods for Containment	Wear the full Personal Protection Equipment, avoiding inhalation or contact with skin or eyes. Dike to contain spill with inert material which is absorbent and non-combustible (clay, sand or soil). Then soak up with absorbent material inward from the edges.
Methods for cleaning up	Transfer spilled material to plastic bags with a shovel or dustpan and broom using non-sparking tools, if possible. Clean and neutralize spill area, tools and equipment with a solution of caustic soda and detergent or an appropriate alcohol (e.g., methanol, ethanol or isopropanol). Continue washing with a strong solution of soap and water, using the least amount possible. Absorb rinsate and add it to the waste collected. Repeat if necessary. Then place the bags in a plastic container. Waste container must be classified and labeled prior to disposal. Before re-entering the area where the spill occurred, ventilate closed spaces at least 15 minutes. For waste disposal, see indications in Section 13.
Other	For further cleaning instructions call COTRA (COMMITTEE ON TRANSPORT AND STORAGE) 045 55 4194 0157.

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 CONTROLS/PERSONAL PROTECTION**Exposure Guidelines**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Toluene	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
Chemical name	British Columbia	Quebec	Ontario TWAEV	Alberta
Propylene glycol			TWA: 10 mg/m ³ aerosol only TWA: 50 ppm aerosol and vapor TWA: 155 mg/m ³ aerosol and vapor	

Toluene	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m ³ Skin	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m ³ Skin
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Occupational exposure controls**Engineering measures**

Apply technical measures to comply with the occupational exposure limits (if listed above). When working in confined spaces (tanks, containers, etc.), Make sure there is an adequate source of air for breathing and wear the recommended equipment. Ventilate all transport vehicles prior to discharge.

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 splash, spray or mist exposure wear, as a minimum, a properly fitted half-face or full-face respirator with dust/mists/fume cartridges (approved by U.S. NIOSH/MSHA, EU CEN or comparably certified organization). Respirator use and selection must be based on airborne concentrations.

Eye/Face Protection

For exposure to mists or sprays, wear safety goggles or face shield for chemical agents.

Skin and Body Protection

Use coveralls or long-sleeved uniform and head covering. For large exposures as in case of a spill, use barrier suit covering the entire body, such as a waterproof PVC suit. Leather items, including shoes, belts and watchbands, that have been contaminated should be removed and destroyed. Wash all work clothing before reuse (separately from clothing commonly used).

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.

Hygiene measures

Must have clean water available for washing in case of eye or skin contamination. Wash skin before eating, drinking, chewing gum, or using snuff. Shower after work. Remove contaminated clothing and wash before reuse. Wash all work clothing separately; do not mix with household laundry.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Appearance	Off-white Liquid
Color	Off-white
Physical State	Liquid
Odor	Low Alcohol
pH	5.3-6.0 @ 20°C
Melting Point/Range	123 °C
Boiling Point/Range	No information available
Flash point	> 94 °C / > 201 °F Tag Closed Cup
Evaporation Rate	Not applicable
Oxidizing properties	No data available
Vapor pressure	1 x 10 ⁻⁹ mm Hg at 25°C
Vapor density	Not applicable
Density	10.07 lb/gal
Specific gravity	1.21 @ 20 °C (water = 1)
Water solubility	Dispersible in water
Percent Volatile	Not applicable
Partition coefficient	Not applicable
Viscosity	Not applicable
Decomposition temperature	No information available

10. STABILITY AND REACTIVITY

Stability	Stable.
Conditions to Avoid	Excessive heat.
Hazardous Decomposition Products	Carbon oxides (COx), Nitrogen oxides (NOx), Sulfur oxides, Hydrogen chloride, Hydrogen fluoride.
Hazardous polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Effects

Principal Routes of Exposure Eye Contact, Skin Contact, Inhalation, Ingestion.

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	Slightly or non-irritating (rabbit)
Skin Contact	Slightly or non-irritating (rabbit)
LD50 Dermal	> 2000 mg/kg (rabbit)
LD50 Oral	2084 mg/kg (rat)
LC50 Inhalation	> 2.72 mg/L 4 hr (rat) - Maximum attainable concentration (zero mortality)

Sensitization Did not cause sensitization on laboratory animals.

Chronic Effects

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

Carcinogenicity Sulfentrazone: No evidence of carcinogenicity from animal studies

Mutagenicity Sulfentrazone: Not genotoxic in animal studies

Reproductive toxicity Sulfentrazone: No toxicity to reproduction in animal studies.

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

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.

Target organ effects Sulfentrazone: Hematopoietic system.

Chemical name	ACGIH	IARC	NTP	OSHA	NIOSH - Target Organs
Toluene		Group 3			CNS,eyes,kidneys,liver,respiratory system,skin

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects Very toxic to aquatic organisms

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

Environmental Fate

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: 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.

Contaminated Packaging Containers should be disposed of in accordance with local, state and federal regulations. For removal of the package see the instructions on the label. Handle empty containers and waste product as established in the General Law for the Prevention and Management of Waste Regulations or Management Plan Pesticides Empty Containers, Registered by SEMARNAT.

14. TRANSPORT INFORMATION

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

15. REGULATORY INFORMATION

The document consists of 16 points which cover the 12 points of the official Mexican Regulation NOM-018-STPS-2000 system for the identification and communication of hazards and risks of dangerous chemical substances, which found in the workplace 271000.

COFEPRIS [Federal Commission for the Protection Against Sanitary Risks] Register:
RSCO-HEDE-0201J-305-064-040

16. OTHER INFORMATION

Revision date: 2015-10-26
Reason for revision: Initial Release.

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End of Safety Data Sheet