

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

Effective Date: 4/28/99
Product Code: 20410
MSDS: 004049

SONALAN* 10G HERBICIDE

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Sonalan* 10G Herbicide

COMPANY IDENTIFICATION:

Dow AgroSciences
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Ethalfuralin: N-ethyl-N-(2-methyl-2-propenyl)-2,6-dinitro-4-(trifluoromethyl)benzenamine	CAS# 055283-68-6	10%
Inert Ingredients, Total, Including Clay (crystalline silica)	CAS# 001318-93-0	90%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Hazardous chemical. Yellow-green granule with mild aromatic odor. May cause moderate irritation with corneal injury that is slow to heal. Repeated excessive exposure may cause upper respiratory tract irritation. Avoid elevated temperatures; heating product above 70C (158F) can lead to reaction with pressure buildup. Toxic to fish.

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POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects which could occur if this material is not handled in the recommended manner.

EYE: May cause moderate irritation with corneal injury. Effects may be slow to heal.

SKIN: Prolonged or repeated exposure not likely to cause significant skin irritation. Did not cause allergic skin reactions when tested in guinea pigs. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD₅₀ for skin absorption in rabbits is >5000 mg/kg.

INGESTION: Single dose oral toxicity is extremely low. The oral LD₅₀ for rats is >5000 mg/kg. No hazards anticipated from swallowing small amounts incidental to normal handling operations.

INHALATION: Vapors are unlikely due to physical properties. Single exposure to dust is not likely to be hazardous.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: For ethalfuralin, in animals, effects have been reported on the following organs: blood, kidney, liver and thyroid gland. Repeated excessive exposure to dusts may cause irritation of the upper respiratory tract. Repeated excessive exposure to crystalline silica may cause silicosis, a progressive and disabling disease of the lungs. Some evidence suggests that kidney effects may result from excessive exposures also.

CANCER INFORMATION: An increase in benign mammary fibroadenomas was seen female rats exposed to high levels of ethalfuralin. This mixture contains crystalline silica which is listed as a carcinogen for hazard communication purposes under OSHA Standard 29 CFR Part 1910.1200. Crystalline silica is listed by IARC and NTP. Crystalline silica has caused cancer in laboratory animals and humans.

TERATOLOGY (BIRTH DEFECTS): Ethalfuralin caused birth defects in lab animals only at doses toxic to the mother.

REPRODUCTIVE EFFECTS: Ethalfuralin did not interfere with reproduction in animal studies.

4. FIRST AID:

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Wash off in flowing water or shower.

INGESTION: No adverse effects anticipated by this route of exposure incidental to proper industrial handling.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

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5. FIRE FIGHTING MEASURES:

FLASH POINT: Not applicable
METHOD USED: Not applicable

FLAMMABLE LIMITS

LFL: Not applicable
UFL: Not applicable

EXTINGUISHING MEDIA: Use water, CO₂, or dry chemicals.

FIRE AND EXPLOSION HAZARDS: Toxic, irritating fumes may be formed if product is involved in fire. Exposure of ethalfuralin technical to elevated temperatures may generate significant pressures; although this product contains only 10% ethalfuralin, containers exposed to intense heat from fires should be kept cool with water to prevent possible container weakening or rupture. Fire water runoff may be toxic; keep out of sewers, storm drains, surface waters, and soil.

FIRE-FIGHTING EQUIPMENT: Wear full protective clothing and use positive-pressure, self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS: In case of leak or spill, contain material and dispose as waste. Do not contaminate any body of water. Sweep up material. Dispose of damaged unusable containers in accordance with applicable local, state, and federal regulations. Report large spills to Dow AgroSciences at 800-992-5994.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Causes eye damage. Do not get in eyes. Harmful if swallowed, inhaled, or absorbed through skin. Avoid breathing dust and contact with skin and clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Read the product label for personal protective equipment which may be required by the Worker Protection Standard for early entry to treated areas. Store in original container away from heat and dwellings.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where a potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINE(S):

Ethalfuralin: Dow AgroSciences Industrial Hygiene Guide is 3 mg/M³.

Silica, crystalline: ACGIH TLV is 0.1 mg/M³ (respirable) for quartz, tripoli, and fused silica; 0.05 mg/M³ (respirable) for cristobalite and tridymite. OSHA PEL is 10/%SiO₂ + 2 mg/M³ (respirable) for quartz, tripoli, and fused silica; ½ the value calculated from the respirable dust formula for quartz for cristobalite and tridymite.

PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying respirator. In dusty atmospheres, use a NIOSH approved dust respirator.

SKIN PROTECTION: For handling prior to end-use of this product, no precautions other than clean body-covering clothing should be needed. For handling relative to end-use of this product, read product label for information concerning the use of personal protective equipment (PPE) under the Worker Protection Standard of 1993.

EYE/FACE PROTECTION: Use chemical goggles.

APPLICATORS AND ALL OTHER HANDLERS: Please refer to the product label for personal protective clothing and equipment.

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9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: Not applicable
VAPOR PRESSURE: Not determined
VAPOR DENSITY: Not determined
SOLUBILITY IN WATER: Not soluble in water
SPECIFIC GRAVITY: Not determined
pH (Aqueous 10%/90%): 6.5
APPEARANCE: Free-flowing, yellow-green granule
ODOR: Mild aromatic odor

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Avoid elevated temperatures. Heating ethalfluralin technical to temperatures above 70°C (158°F) can lead to violent reaction with rapid pressure buildup. Although this product contains only 10% ethalfluralin, it is recommended that, heating above 70°C (158°F) should be avoided.

INCOMPATIBILITY (SPECIFIC MATERIALS TO AVOID):
None known.

HAZARDOUS DECOMPOSITION PRODUCTS:

Combustion may produce carbon dioxide, carbon monoxide, oxides of nitrogen, hydrofluoric acid, and unidentified organic compounds.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

MUTAGENICITY: In vitro mutagenicity studies were predominantly negative and animal studies were negative for ethalfluralin. In vitro and animal mutagenicity studies were negative for crystalline silica.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE MOVEMENT & PARTITIONING:

Based largely or completely on information for ethalfluralin. Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

DEGRADATION & PERSISTENCE:

Based largely or completely on information for ethalfluralin. Degradation is expected in the soil environment within months to years.

ECOTOXICOLOGY:

Based largely or completely on information for ethalfluralin. Material is very highly toxic to aquatic organisms on an acute basis ($LC_{50}/EC_{50} < 0.1$ mg/L in most sensitive species).

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Do not contaminate food, feed, or water by storage or disposal. Pesticide wastes are toxic. Improper disposal or excess pesticide, spray mixture, or rinsate is a violation of federal law. If wastes resulting from the use of this product cannot be disposed of according to label instructions, dispose of these wastes at an approved facility. Contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or consult your Dow AgroSciences representative.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

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SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Category	Rating
Health	3
Flammability	1
Reactivity	1

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS: Changed company name and telephone number
Revised sections: 3,6,8,10,11,12,14
Reference: DR-0332-3351
Replaces MSDS dated: 2/12/97
Document Code: D03-041-754
Replaces Document Code: D03-020-410

The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult Dow AgroSciences For Further Information.