

MATERIAL SAFETY DATA SHEET



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

Effective Date: 7/12/05
Product: 00288

SHOWCASE* HERBICIDE

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Showcase* Herbicide

COMPANY IDENTIFICATION:

Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Isoxaben: N-(3-(1-ethyl-1-methylpropyl)-5-isoxazolyl)-2,6-dimethoxybenzamide	CAS# 082558-50-7	0.25%
Oxyfluorfen: 2-chloro-alpha, alpha, alpha-trifluoro-p-tolyl 3-ethoxy-4-nitrophenyl ether	CAS # 042874-03-3	0.25%
Trifluralin: alpha, alpha, alpha-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine	CAS# 001582-09-8	2.0%
Balance, Total, Including: Crystalline Silica	CAS# 014808-60-7	97.50%

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Green granule with an organic odor. May cause eye irritation or corneal injury. Toxic to aquatic organisms.

EMERGENCY PHONE NUMBER: 800-992-5994

4. FIRST AID:

EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, and then continue rinsing eyes. Call a poison control center or doctor for treatment advice.

SKIN: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

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 the poison control center or doctor. Never give anything by mouth to an unconscious person.

INHALATION: Move person to fresh air. If person is not breathing, call 911 or an ambulance, and then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: Not applicable (granule)
METHOD USED: Not applicable

FLAMMABLE LIMITS
LFL: Not applicable
UFL: Not applicable

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

FIRE AND EXPLOSION HAZARDS: Will emit toxic vapors during combustion.

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

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS: Contain and sweep up material of small spills and dispose as waste. Report large spills to Dow AgroSciences at 800-992-5994. Prevent runoff.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

HANDLING: Keep out of reach of children. Harmful if swallowed or inhaled. Causes eye irritation. Avoid contact with eyes, skin and clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

STORAGE: Store in original container in a dry area. See product label for handling/storage precautions relative to the end use of this product.

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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):

Crystalline Silica: ACGIH TLV is 0.1 mg/M³ (respirable) for tripoli and fused silica; 0.05 mg/M³ (respirable) for cristobalite, tridymite and quartz. Quartz has an A2 designation. OSHA PEL is 30 mg/M³/(%SiO₂ + 2) total dust, (250 mppcf)/(%SiO₂ + 5) or (10 mg/M³)/(%SiO₂ + 2) respirable for quartz, tripoli, and fused silica; the value for cristobalite and tridymite is 1/2 the value calculated from the respirable dust formula for quartz.

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 guideline. If respiratory irritation is experienced, use a NIOSH approved air-purifying respirator.

SKIN PROTECTION: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, gloves, boots, apron or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items, which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

EYE/FACE PROTECTION: Use safety glasses. If there is a potential for exposures to particles, which could cause eye discomfort, wear chemical goggles.

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

9. PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Green granule

ODOR: Aromatic

pH: 7.0

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Stable under normal storage conditions.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) None known

HAZARDOUS DECOMPOSITION PRODUCTS: Nitrogen oxides and other toxic vapors may be formed if product is involved in fire.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

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

EYE: Solid or dust may cause eye irritation or corneal injury due to mechanical action.

SKIN: Prolonged contact may cause skin irritation with local redness. May cause skin irritation due to mechanical abrasion. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The dermal LD₅₀ has not been determined. For trifluralin, skin contact may cause allergic skin reaction. Isoxaben did not cause allergic skin reactions when tested in guinea pigs.

INGESTION: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. Single dose oral LD₅₀ has not been determined.

INHALATION: Dust may cause irritation of the upper respiratory tract (nose and throat) and lungs.

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SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: For the active ingredient(s), in animals, effects have been reported on the following organs: kidney and liver. 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: Oxyfluorfen has caused cancer in laboratory animals. An increase in non-malignant liver tumors was observed with isoxaben in one of two species tested. A low incidence of urinary tract tumors was seen in only 1 of 5 chronic studies in rats with trifluralin. Trifluralin is not anticipated to be a carcinogenic risk to man. This mixture contains crystalline silica, which is listed as a carcinogen by IARC and NTP for hazard communication purposed under OSHA Standard 29 CFR 1910.1200. Crystalline silica has been shown to cause cancer in laboratory animals and humans.

TERATOLOGY (BIRTH DEFECTS): Isoxaben has caused birth defects in laboratory animals only at doses toxic to the mother. Trifluralin and oxyfluorfen did not cause birth defects in animals. Has been toxic to the fetus in laboratory animals only at doses toxic to the mother.

REPRODUCTIVE EFFECTS: In laboratory animal studies on isoxaben and oxyfluorfen, effects on reproduction were seen only at doses that produced significant toxicity to the parent animals. Trifluralin did not interfere with reproduction in animal studies.

MUTAGENICITY: For trifluralin, in-vitro genetic toxicity studies were negative and animal genetic toxicity studies were predominantly negative. For isoxaben and oxyfluorfen, in-vitro and animal genetic toxicity studies were negative. For crystalline silica, in-vitro genetic toxicity studies were negative in some cases and positive in other cases.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL DATA:

MOVEMENT & PARTITIONING:

Based largely or completely on information for the trifluralin. Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Potential for mobility in soil is slight (Koc between 2000 and 5000).

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

Based largely or completely on information for oxyfluorfen: Bioconcentration potential is low (BCF <100 or Log Pow <3).

Based largely or completely on information for the clay. Partitioning from water to n-octanol is not applicable.

DEGRADATION & PERSISTENCE:

Based largely or completely on information for the trifluralin and isoxaben:

Based on the stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Based largely or completely on information for oxyfluorfen: Biodegradation under aerobic laboratory condition is below detectable limits (BOD20 or BOD28/ThOD <2.5%).

Based largely or completely on information for the clay. Biodegradation is not applicable.

ECOTOXICOLOGY:

Based largely or completely on information for the trifluralin and oxyfluorfen:

Material is very highly toxic to aquatic organisms on an acute basis (LC₅₀ or EC₅₀ <0.1 mg/L in the most sensitive species tested).

Material is practically non-toxic to birds on an acute basis (LD₅₀ is >2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC₅₀ is >5000 ppm).

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Based largely or completely on information for isoxaben:
Material is practically non-toxic to birds on an acute basis (LD₅₀ is >2000 mg/kg).
Based largely or completely on information for the clay.
Not expected to be acutely toxic to aquatic organisms.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION:

U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:

For packages non-bulk shipments by all modes of transportation:

This material is not regulated for transport

For bulk shipments by all modes of transportation:

ENVIRONMENTALLY HAZARDOUS SUBSTANCES,
SOLID, N.O.S.(CONTAINS TRIFLURALIN)/9/UN3077/
PG III/RQ (TRIFLURALIN)

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: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
Trifluralin	001582-09-8	2.0%
Oxyfluorfen	042874-03-3	0.25%

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.

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STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
Trifluralin	001582-09-8	NJ2 NJ3 PA1 PA3
Oxyfluorfen	042874-03-3	NJ2
Crystalline Silica	014808-60-7	NJ3 PA1

NJ2=New Jersey Environmental Hazardous Substance (present at > or = to 1.0%).

NJ3=New Jersey Workplace Hazardous Substance (present at > or = to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at > or = to 1.0%).

PA3=Pennsylvania Environmental Hazardous Substance (present at > or = to 1.0%).

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

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA, which may require reporting of releases:

Chemical Name	CAS Number	RQ	% in Product
Trifluralin	001582-09-8	10	2.0%

16. OTHER INFORMATION:

MSDS STATUS: Revised Sections: 4 & 11
Reference: DR-0392-1651
Replaces MSDS Dated: 3/17/05
Document Code: D03-322-002
Replaces Document Code: D03-322-001

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