

MATERIAL SAFETY DATA SHEET



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

Effective Date: 19-Apr-11
Product Code: 111205

SAPPHIRE* HERBICIDE

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Sapphire* Herbicide

COMPANY IDENTIFICATION:

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

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Tan liquid with a musty odor. May cause eye irritation. Material is toxic to aquatic organisms and birds.

EMERGENCY PHONE NUMBER: 800-992-5994

3. COMPOSITION/INFORMATION ON INGREDIENTS:

COMPONENT	CAS NUMBER	W/W%
Penoxsulam	219714-96-2	4.0
Propylene Glycol	57-55-6	3.0
Balance		93.0

4. FIRST AID:

EYE: Flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

SKIN: Wash skin with plenty of water.

INGESTION: No emergency medical treatment necessary.

INHALATION: Move person to fresh air; if effects occur, consult a physician.

NOTE TO PHYSICIAN: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have safety data sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIRE FIGHTING MEASURES:

FLASH POINT: >212°F (>100C)

METHOD USED: PMCC

FLAMMABLE LIMITS:

LFL: Not determined
UFL: Not determined

EXTINGUISHING MEDIA: To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

HAZARDOUS COMBUSTION PRODUCTS: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds.

OTHER FLAMMABILITY INFORMATION: This material will not burn until the water has evaporated. Residue can burn. May produce flash fire. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes.

FIRE-FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical, or foam. Contain fire water run-off if possible. Fire water run-off, if not contained may cause environmental damage.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves. If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Absorb small spills with an absorbent material such as sand, ZORBALL, or dirt. Dike area of large spills and report to Dow AgroSciences at 800-992-5994.

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7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking. Keep away from food, feed stuffs, and water supplies. Spills of these organic materials on hot fibrous insulations may lead to lowering of the auto-ignition temperatures possibly resulting in spontaneous combustion. Store in original container in a dry area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

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

EXPOSURE GUIDELINE(S): Propylene glycol: AIHA WEEL is 10 mg/M³ for total vapor and aerosol.

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:

EYE/FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: Wear clean, body-covering clothing.

HAND PROTECTION: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Neoprene, Nitrile/butadiene rubber (Nitrile or NBR), Polyvinyl chloride (PVC or vinyl). Avoid gloves made of Polyvinyl alcohol (PVA).

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. In dusty or misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: organic vapor cartridge with a particulate pre-filter.

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

9. PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Tan liquid

ODOR: Musty

pH: 6.8

10. STABILITY AND REACTIVITY:

STABILITY: (Conditions to Avoid) Thermally stable at recommended temperatures and pressures. Some components of this product can decompose at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

INCOMPATIBILITY: (Specific Materials to Avoid) Avoid contact with: strong acids, strong bases, and/or strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS:

Decomposition products depend upon temperature, air supply and the presence of other materials.

HAZARDOUS POLYMERIZATION: Will not 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: May cause slight temporary eye irritation. Corneal injury is unlikely.

SKIN: Brief contact is essentially non-irritating to skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD₅₀ for a similar material for skin absorption in rats is >5,000 mg/kg. 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. The oral LD₅₀ for a similar material for rats is >5,000 mg/kg.

INHALATION: No adverse effects are anticipated for single exposure to mist. The aerosol LC₅₀ for a similar material for rats is >0.74 mg/L for 4 hours. This was the maximum attainable concentration.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: For a similar material, repeated skin application to laboratory animals did not produce systemic toxicity. For the active ingredient, in animals, effects have been reported on the following organs: liver and kidneys.

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CANCER INFORMATION: The active ingredient did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): The active ingredient did not cause birth defects in laboratory animals.

REPRODUCTIVE EFFECTS: In animal studies, the active ingredient did not interfere with reproduction.

MUTAGENICITY: For a similar material, in-vitro and animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL DATA:

MOVEMENT & PARTITIONING:

Based largely or completely on information for the active ingredient:

Bioconcentration potential is low (BCF is <100 or Low Pow <3).

Log octanol/water partition coefficient (Log Pow) is estimated using a structural fragment method to be 2.95. Henry's Law Constant (H) is estimated to be $1.657E^{-16}$ atm-M³/mole.

Expected to be relatively immobile in soil (Koc is >5000). Soil organic carbon/water partition coefficient (Koc) is estimated to be 271600.

DEGRADATION & PERSISTENCE:

Based largely or completely on information for the active ingredient:

The rate constant for vapor phase reaction with photochemically produced hydroxyl radicals at 25°C is estimated to be $6.03E^{-11}$ cm³/molecule-sec.

In the atmospheric environment, material is estimated to have a tropospheric half-life of 2.130 hrs.

ECOTOXICOLOGY:

Based largely or completely on information for the active ingredient:

Material is highly toxic to aquatic organisms on an acute basis (LC₅₀ or EC₅₀ is between 0.1 and 1 mg/L in most sensitive species).

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

Material is slightly toxic to birds on a dietary basis (LC₅₀ is between 1001 and 5000 ppm).

The LC₅₀ in earthworm (*Eisenia foetida*) is >1000 mg/kg.

Acute contact LD₅₀ for honeybee (*Apis mellifera*) is >100 µg/bee.

Acute oral LD₅₀ in honeybee (*Apis mellifera*) is >110 µg/bee.

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:

DOT Non-Bulk
NOT REGULATED

DOT Bulk
NOT REGULATED

IMDG

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S

Technical Name: PENOX SULAM

Hazard Class: 9 ID Number: UN3082

Packing Group: PG III

EMS Number: f-a,s-f

Marine pollutant.: Yes

ICAO/IATA

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: PENOX SULAM

Hazard Class: 9 ID Number: UN3082 Packing Group: PG III

Cargo Packing Instruction: 964

Passenger Packing Instruction: 964

Additional Information

MARINE POLLUTANT

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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.

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.

STATE RIGHT-TO-KNOW: This product is not known to contain any substances subject to the disclosure requirements of

New Jersey
Pennsylvania

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): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS: Revised Sections: 14
Reference: DR-0357-6203
Replaces RSSDS Dated: 29-Apr-10
Document Code: D03-354-004
Replaces Document Code: D03-354-003

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