

MATERIAL SAFETY DATA SHEET



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

DMA* -6M HERBICIDE

Effective Date: 1/23/01
Product Code: 22064
MSDS: 005987

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: DMA* -6M HERBICIDE

COMPANY IDENTIFICATION:

Dow AgroSciences
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

2,4-D Dimethylamine Salt:	CAS #002008-39-1	70%
2,4-Dichlorophenoxyacetic Acid, Dimethylamine Salt		
Other Ingredients, Total		30%

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. Dark amber to black liquid with a mild phenolic odor. May cause eye irritation with corneal injury. LD₅₀ for skin absorption in rabbits is 2244 mg/kg; oral LD₅₀ for rats is 1090 mg/kg (males) and 863 mg/kg (females). Corrosive. Avoid excessive heat.

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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 severe irritation with corneal injury, which may result in permanent impairment of vision, even blindness.

SKIN: Prolonged exposure may cause skin irritation. Repeated exposure may cause skin burns. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. Repeated skin exposure may result in absorption of harmful amounts. The LD₅₀ for skin absorption in rabbits is 2244 mg/kg.

INGESTION: Single dose oral toxicity is low. The oral LD₅₀ for male rats is 1100 mg/kg and for female rats is 860 mg/kg. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

INHALATION: Single exposure to vapors is not likely to be hazardous.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: In animals, effects have been reported on the following organs: adrenal gland, bone marrow, eye, kidney, liver, spleen, testes, and thyroid.

CANCER INFORMATION: 2,4-Dichlorophenoxyacetic acid did not cause cancer in laboratory animal studies.

TERATOLOGY (BIRTH DEFECTS): For 2,4-D acid: Did not cause birth defects; other fetal effects occurred only at doses toxic to the mother.

REPRODUCTIVE EFFECTS: Excessive dietary levels of 2,4-D acid caused toxic effects (weight and viability reduction) in rats on a reproduction study.

4. FIRST AID:

EYES: Immediate and continuous irrigation with flowing water for at least 30 minutes is imperative. Prompt medical consultation is essential.

SKIN: Wash off in flowing water or shower.

INGESTION: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

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

NOTE TO PHYSICIAN: If burn is present, treat as any thermal burn, after decontamination. 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: None (tested to 290°C)
METHOD USED: TOC

FLAMMABLE LIMITS

LFL: Not determined
UFL: Not determined

EXTINGUISHING MEDIA: Water fog, foam.

FIRE & EXPLOSION HAZARDS: Noxious fumes produced under fire conditions. Contain water from fire fighting to prevent entry to surface and ground water.

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

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Absorb in material such as sawdust, sand or clay. Dike area in case of large spills; notify Dow AgroSciences at 800-992-5994. Wear protective clothing and self-contained breathing apparatus if vapors are present.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

HANDLING: Keep out of reach of children. Harmful if swallowed, inhaled, or absorbed through skin. 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: Do not store below temperature of 45°F (7°C). If frozen (crystallized), warm to 80°-90°F (27°-32°C) and re-dissolve before using by rolling or shaking the container. Store in safe manner in original container only. Store in cool, dry place. Keep container tightly closed when not in use. See product label for handling/storage precautions relative to the end use of this product.

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): 2,4-D Dimethylamine Salt: None established. ACGIH TLV and OSHA PEL are 10 mg/M³ for 2,4-D acid.

EXPOSURE 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. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying respirator for organic vapors.

SKIN PROTECTION: Use protective clothing impervious 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.

EYE PROTECTION: Use chemical goggles. Eyewash fountain should be located in the immediate work area.

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

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9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: 212°F (>100°C)
VAPOR PRESSURE: 8.0 x 10⁻¹⁰ mmHg @ 25°C
VAPOR DENSITY: Water vapor
SOLUBILITY IN WATER: Infinite
SPECIFIC GRAVITY: 1.24 (68°/68°F) (20°C)
APPEARANCE: Dark amber to black liquid
ODOR: Mild phenolic

10. STABILITY AND REACTIVITY:

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

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)
Acids and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride and nitrogen oxides may be produced under fire conditions.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

MUTAGENICITY (EFFECTS OF GENETIC MATERIAL):
In-vitro mutagenicity studies were negative. For 2,4-D acid: animal mutagenicity studies were predominantly negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING:

Bioconcentration potential is low (BCF <100 or Log Pow <3). Potential for mobility in soil is high (Koc between 50-150).

Bioconcentration factor (BCF) in fish is between 0.1-0.47. Soil organic carbon/water partition coefficient (Koc) is 72-136.

DEGRADATION AND PERSISTENCE:

5-Day biochemical oxygen demand (BOD5) is 0.72.
10-Day biochemical oxygen demand (BOD10) is 0.72.
20-Day biochemical oxygen demand (BOD20) is 0.72.
Chemical oxygen demand (COD) is 0.72.
Under aerobic soil conditions the half-life is 4-23 days.
Under aerobic aquatic conditions the half-life is 0.5-11 days.

ECOTOXICOLOGY:

Material is practically non-toxic to aquatic organisms on an acute basis (LC₅₀/EC₅₀ >100 mg/L in most sensitive species).

Acute LC₅₀ for fathead minnow (*Pimephales promelas*) is 344 mg/L.

Acute LC₅₀ for bluegill (*Lepomis macrochirus*) is 524 mg/L.

Acute LC₅₀ for rainbow trout (*Oncorhynchus mykiss*) is 250 mg/L.

Acute LC₅₀ for water flea (*Daphnia magna*) is 184 mg/L.

Acute EC₅₀ for shell deposition inhibition in eastern oyster (*Crassostrea virginica*) is 136 mg/L.

Acute LC₅₀ for pink shrimp (*Penaeus duorarum*) is 181 mg/L.

Acute LC₅₀ for tidewater silverside (*Menidia beryllina*) is 469 mg/L.

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

Material is moderately toxic to birds on an acute basis (LD₅₀ is between 51 and 500 mg/kg).

Dietary LC₅₀ for bobwhite (*Colinus virginianus*) is >5620 ppm.

Dietary LC₅₀ for mallard (*Anas platyrhynchos*) is >5620 ppm.

Growth inhibition EC₅₀ for duckweed (*Lemna sp.*) is 0.58 mg/L.

Growth inhibition EC₅₀ for marine diatom (*Skeletonema costatum*) is 36.60 mg/L.

Growth inhibition EC₅₀ for blue-green alga (*Anabaena flos-aquae*) is 153 mg/L.

Growth inhibition EC₅₀ for green alga (*Selenastrum capricornutum*) is 66.5 mg/L.

Growth inhibition EC₅₀ for diatom (*Navicula sp.*) is 5.28 mg/L.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Wastes are toxic. Improper disposal of excess waste, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed by use according to label instructions, contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

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14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product-shipping papers, or contact 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.

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:

<u>Category</u>	<u>Rating</u>
Health	3
Flammability	1
Reactivity	1

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:

<u>Chemical Name</u>	<u>CAS Number</u>	<u>RQ</u>	<u>% in Product</u>
2,4-Dichlorophenol	000120-83-2	100	0.1%

16. OTHER INFORMATION:

MSDS STATUS: Revised Sections: 2,3,7,8,10,12, & 13
Reference: DR-0008-3556
Replaces MSDS Dated: 2/19/99

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