

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Solution Water Soluble®
EPA Reg. No.: 228-260
Synonyms: 2,4-D DMA; 2,4-Dichlorophenoxyacetic acid, dimethylamine salt
Product Type: Herbicide

Company Name: Nufarm Americas Inc.
150 Harvester Drive, Suite 200
Burr Ridge, IL 60527

Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night: 1-800-424-9300
For Medical Emergencies Only, Call 1-877-325-1840

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2. HAZARDS IDENTIFICATION**Emergency Overview:**

Appearance and Odor: Tan to dark brown colored powder with amine odor.

Warning Statements: Keep out of reach of children. DANGER. Corrosive. Causes irreversible eye damage. May be fatal if absorbed through skin. Do not get in eyes, on skin or on clothing.

Potential Health Effects:

Likely Routes of Exposure: Ingestion, eye and skin contact.

Eye Contact: Causes irreversible eye damage. Dusts may cause irritation.

Skin Contact: Moderately irritating. Overexposure by skin absorption may cause symptoms similar to those for ingestion.

Ingestion: Harmful if swallowed. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation, weakness and central nervous system depression.

Inhalation: Low inhalation toxicity.

Medical Conditions Aggravated by Exposure: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

Potential Environmental Effects:

This pesticide may be hazardous to fish and aquatic invertebrates. . Drift and runoff may be hazardous to aquatic organisms in waste adjacent to treated areas.

See Section 12: ECOLOGICAL INFORMATION for more information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Dimethylamine Salt of 2,4-Dichlorophenoxyacetic Acid	2008-39-1	96.9
Other Ingredients		3.1

4. FIRST AID MEASURES

If in Eyes: Hold eye 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 treatment advice.

If Swallowed: 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. Do not give anything by mouth to an unconscious person.

If on Skin: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE FIGHTING MEASURES

Flash Point: Not applicable

Autoignition Temperature: Not applicable

Flammability Limits: Not applicable

Extinguishing Media: Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as hydrogen chloride and oxides of nitrogen and carbon.

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 3 Flammability: 1 Reactivity: 1

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: If dry, sweep or scoop up material and place into container for disposal. If wet, pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

Handling:

Do not get in eyes, on skin, or on clothing. Avoid inhaling vapor or spray mist. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and water. Users should remove Personal Protective Equipment (PPE) immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Storage:

Always use original container to store pesticides in a secure warehouse or storage building. This product should be stored in a cool, dry location. Do not store near seeds, fertilizers, insecticides, or fungicides. Container should be opened in a well-ventilated area. All containers should be kept tightly sealed when not in use. Do not contaminate water, feed or foodstuff by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear face shield, goggles or safety glasses with front, brow and temple protection. An emergency eyewash should be readily accessible to the work area.

Skin Protection: To avoid contact with skin, wear coveralls over short-sleeved shirt and short pants, chemical-resistant gloves and chemical-resistant footwear plus socks. For overhead exposure, wear chemical-resistant headgear. Wear a chemical-resistant apron when cleaning equipment, mixing, or loading. An emergency shower should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
DMA Salt of 2,4-D	10*	NE	10*	NE	mg/m ³

*Based on adopted limit for 2,4-D

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Tan to dark brown colored powder with amine odor.

Boiling Point: Not applicable

Density: 33 - 35 pounds/cubic foot

Evaporation Rate: Not applicable

Freezing Point: Not applicable

pH: 4.5 – 5.5

Solubility in Water: Soluble

Specific Gravity: Not applicable

Vapor Density: Not applicable

Vapor Pressure: Not applicable

Viscosity: Not applicable

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal handling and storage conditions.

Conditions to Avoid: Excessive heat. Do not store near heat or flame.

Incompatible Materials: Strong oxidizing agents: bases and acids.

Hazardous Decomposition Products: Under fire conditions, may produce gases such as hydrogen chloride and oxides of nitrogen and carbon.

Hazardous Reactions: Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Data from laboratory studies on this product are summarized below:

Oral: Rat LD₅₀: 404 mg/kg (female) and 614 mg/kg (male)

Dermal: Rabbit LD₅₀: 1,414 mg/kg (female) and >2,000 mg/kg (male)

Inhalation: Rat 4-hr LC₅₀: >3.5 mg/l

Eye Irritation: Rabbit: Corrosive

Skin Irritation: Rabbit: Mildly irritating

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure to phenoxy herbicides may cause effects to liver, kidneys, blood chemistry, and gross motor function. Rare cases of peripheral nerve damage have been reported, but extensive animal studies have failed to substantiate these observations, even at high doses for prolonged periods.

Carcinogenicity / Chronic Health Effects: The International Agency for Research on Cancer (IARC) lists exposure to chlorophenoxy herbicides as a class 2B carcinogen, the category for limited evidence for carcinogenicity in humans. However, more current 2,4-D lifetime feeding studies in rats and mice did not show carcinogenic potential. The U.S. EPA has given 2,4-D a Class D classification (not classifiable as to human carcinogenicity).

Reproductive Toxicity: No impairment of reproductive function attributable to 2,4-D has been noted in laboratory animal studies.

Developmental Toxicity: Studies in laboratory animals with 2,4-D have shown decreased fetal body weights and delayed development in the offspring at doses toxic to mother animals.

Genotoxicity: There have been some positive and some negative studies, but the weight of evidence is that 2,4-D is not mutagenic.

Assessment Carcinogenicity:

This product contains substances that are considered to be probable or suspected human carcinogens as follows:

Component	Regulatory Agency Listing As Carcinogen			
	ACGIH	IARC	NTP	OSHA
Chlorophenoxy Herbicides	NE	2B	NE	NE

NE- Not Established

See Section 2: HAZARDS IDENTIFICATION for more information.

12. ECOLOGICAL INFORMATION**Ecotoxicity:**

Data on 2,4-D Dimethylamine Salt:

96-hour LC ₅₀ Bluegill:	524 mg/l	Bobwhite Quail Oral LD ₅₀ :	500 mg/kg
96-hour LC ₅₀ Rainbow Trout:	250 mg/l	Mallard Duck 8-day Dietary LC ₅₀ :	>5,620 ppm
48-hour EC ₅₀ Daphnia:	184 mg/l		

Environmental Fate:

In laboratory and field studies, 2,4-D DMA salt rapidly dissociated to parent acid in the environment. The typical half-life of the resultant 2,4-D acid ranged from a few days to a few weeks.

13. DISPOSAL CONSIDERATIONS**Waste Disposal Method:**

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixtures, or rinsate is a violation of Federal law and may contaminate groundwater. If container is damaged or if pesticide has spilled, contain all spillage. Clean up all spilled material with broom. Place in a closed, labeled container for proper disposal. If these wastes cannot be disposed of 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.

Container Handling and Disposal:

Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. After removal of all PVA packets, dispose of empty container in a sanitary landfill, by incineration or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

DOT**<100 pounds per completed package**

Non Regulated

≥ 100 pounds per completed package

UN 3077, Environmentally hazardous substance, solid, n.o.s. (2,4-D Salt), 9, III, RQ

IMDG

Non Regulated

IATA

Non Regulated

15. REGULATORY INFORMATION**U.S. Federal Regulations:**

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:**Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):**

Immediate and Delayed

Section 313 Toxic Chemical(s):

Acetic Acid, (2,4-Dichlorophenoxy)- (CAS No. 94-75-7), 80.5% equivalent by weight in product

Reportable Quantity (RQ) under U.S. CERCLA:

Acetic Acid, (2,4-Dichlorophenoxy)- (CAS No. 94-75-7) 100 pounds

RCRA Waste Code:

Acetic Acid, (2,4-Dichlorophenoxy)- (CAS No. 94-75-7) U240

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: Not Listed.

16. OTHER INFORMATION

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

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