

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**Product Name:** 2,4-D Granules  
**EPA Reg. No.:** 228-61  
**Product Type:** Herbicide  
**Company Name:** Nufarm Americas Inc.  
11901 S. Austin Avenue  
Alsip, IL 60803  
1-800-345-3330

**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

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not the same as the FIFRA label. Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

**2. HAZARDS IDENTIFICATION****PHYSICAL HAZARDS:**

None

**HEALTH HAZARDS**

Acute toxicity, oral	Category 4
Skin Sensitization	Category 1
Eye Damage/Irritation	Category 2

**ENVIRONMENTAL HAZARDS**

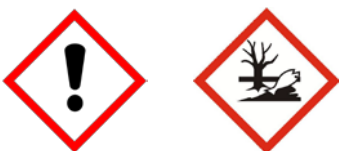
Hazardous to aquatic environment, acute	Category 1
Hazardous to aquatic environment, chronic	Category 1

**SIGNAL WORD**

WARNING

**HAZARD STATEMENTS:**

Harmful if swallowed. Causes serious eye irritation. May cause an allergic skin reaction. Very toxic to aquatic life with long lasting effects.

**PRECAUTIONARY STATEMENTS**

Avoid breathing vapors or spray. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear eye protection and protective gloves. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment.

IF SWALLOWED: call a POISON CENTER or doctor if you feel unwell. Rinse mouth.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice. Wash contaminated clothing before reuse.

Collect spillage.

Dispose of contents in accordance with local, state, and federal regulations

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

COMPONENTS	CAS NO.	% BY WEIGHT
2,4-D Ethylhexyl Ester	1928-43-4	28 – 30
Montmorillonite	1302-78-9	61 – 67
Quartz (crystalline silica) (0.00047% in respirable range)	14808-60-7	5 -- 7

**Synonyms:** 2,4-D 2EHE; 2,4-D IOE; 2,4-Dichlorophenoxyacetic acid, Isooctyl (2-ethylhexyl ester);  
Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

**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 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 Inhaled:** Move person to fresh air. If breathing is difficult, administer oxygen. If symptoms develop, get medical advice.

**If on Skin or Clothing:** Take off contaminated clothing. Rinse skin with plenty of water for several minutes. Call a poison control center or doctor for treatment advice.

**Most important symptoms/effects, acute and delayed:** Harmful if swallowed. May cause moderate eye irritation. May cause slight skin irritation. May cause allergic skin reaction (sensitization).

**Indication of immediate medical attention and special treatment needed, if necessary:** Immediate medical attention should not be required.

**5. FIRE FIGHTING MEASURES**

**Extinguishing Media:** Use extinguishing media suitable for surrounding materials. Dry chemical, carbon dioxide, foam, water spray or fog.

**Special Fire Fighting Procedures:** Firefighters should wear NIOSH 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:** This product is a non-combustible material. 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 carbon and nitrogen.

**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 Clean-Up and Disposal:** Avoid creation of dusty conditions. Scrape up and place in appropriate closed container. 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:**

Avoid contact with eyes, skin or clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove Personal Protective Equipment (PPE)

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immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### STORAGE:

Store pesticides in a secure warehouse or storage building inaccessible to children and domestic animals. Avoid storing near open containers of fertilizer, seed or other pesticides. Keep container tightly sealed when not in use. Reduce stacking height where local conditions can affect package strength. Do not contaminate water, food or feed 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 chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

**Skin Protection:** To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves (made of any waterproof material, section category A). An emergency shower or water supply should be readily accessible to the work area.

**Respiratory Protection:** Not normally required. If vapors or dusts 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	
2,4-D 2-ethylhexyl ester	10*	NE	10* (inhalable, skin)	NE	mg/m <sup>3</sup>
Bentonite clay	5 (R)	NE	5 (R)	NE	mg/m <sup>3</sup>
Crystalline silica (quartz)	50 (R) %SiO <sub>2</sub> +2	NE	25 (R)	NE	µg/m <sup>3</sup>

\*Based on adopted limit for 2,4-D

NE = Not Established

R= Respirable fraction

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Dark brown granular solid
<b>Odor:</b>	Pungent amine
<b>Odor threshold:</b>	No data available
<b>pH:</b>	4.05 (1% dispersion in DI Water)
<b>Melting point/freezing point:</b>	No data available
<b>Initial boiling point and boiling range</b>	Not applicable
<b>Flash point:</b>	No data available
<b>Evaporation rate:</b>	No data available
<b>Flammability (solid, gas):</b>	No data available
<b>Upper/lower flammability or explosive limits:</b>	No data available
<b>Vapor pressure:</b>	No data available
<b>Vapor density:</b>	No data available
<b>Relative density:</b>	0.888 g/cm <sup>3</sup> (tap) at ambient temperature
<b>Solubility(ies):</b>	Not soluble
<b>Partition coefficient: n-octanol/water:</b>	No data available
<b>Autoignition temperature:</b>	No data available
<b>Decomposition temperature:</b>	No data available
<b>Viscosity:</b>	Not applicable due to product form (solid).

**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**

**Reactivity:** Not reactive.

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

**Possibility of Hazardous Reaction:** Will not occur.

**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, the active ingredient may produce gases such as hydrogen chloride and oxides of carbon and nitrogen.

**11. TOXICOLOGICAL INFORMATION**

**Likely Routes of Exposure:** Inhalation, eye and skin contact.

**Symptoms of Exposure:** Moderately to severely irritating to the eye. Slightly toxic and mildly irritating to the skin based on toxicity studies. Overexposure by skin absorption may cause nausea, vomiting, abdominal pain, decreased blood pressure, muscle weakness, muscle spasms. Harmful if swallowed. May cause nausea, vomiting, abdominal pain, decreased blood pressure, muscle weakness, muscle spasms. Low inhalation toxicity. May cause symptoms similar to those from ingestion.

**Delayed, immediate and chronic effects of exposure:** None reported.

**Toxicological Data:**

Data from laboratory studies conducted on 2,4-D 2-EHE unless otherwise noted:

**Oral:** Rat LD<sub>50</sub>: 896 mg/kg

**Dermal:** Rabbit LD<sub>50</sub>: >2,000 mg/kg

**Inhalation:** Rat 4-hr LC<sub>50</sub>: >5.4 mg/l

**Eye Irritation:** Rabbit: Mildly irritating

**Skin Irritation:** Rabbit: Non-irritating

**Skin Sensitization,** Guinea Pig: Not a sensitizer (based on study conducted on 2,4-D Granules)

**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:** Prolonged overexposure to phenoxy herbicides can cause liver, kidney and muscle damage. 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). This product contains clay.

**Reproductive Toxicity:** No impairment of reproductive function attributable to 2,4-D have 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	No	2B	No	No
Bentonite clay	No	No	No	No
Crystalline Silica, Quartz	A2	1	Known	No

**12. ECOLOGICAL INFORMATION****Environmental Hazards:**

This product is toxic to fish and aquatic invertebrates.

**Ecotoxicity:**

Data on 2,4-D 2EHE:

<b>Bluegill</b> 96-hour LC <sub>50</sub> :	>5 mg/l	<b>Bobwhite Quail</b> Oral LD <sub>50</sub> :	>5,620 ppm
<b>Rainbow Trout</b> 96-hour LC <sub>50</sub> :	7.2 mg/l	<b>Mallard Duck</b> 8-day Dietary LC <sub>50</sub> :	>5,620 ppm
<b>Daphnia</b> 48-hour EC <sub>50</sub> :	>5 mg/l		

**Environmental Fate:**

In laboratory and field studies, 2,4-D 2-ethylhexyl ester rapidly de-esterified 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. If container is damaged or if pesticide has leaked, clean up all spilled material. Improper disposal of excess pesticide, spray mixtures or rinsate is a violation of Federal law and may contaminate groundwater. 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. Completely empty bag into application equipment. Offer bag for recycling, if available. Empty bag may be disposed of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay away from smoke.

**14. TRANSPORTATION INFORMATION**

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

**DOT:**

< 526 pounds per complete package

Non Regulated

≥ 526 pounds per complete package

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

**IMDG**

UN 3082, Environmentally hazardous substances, Liquid, n.o.s., (2,4-D 2EHE), 9, III

**IATA**

UN 3082, Environmentally hazardous substances, Liquid, n.o.s., (2,4-D 2EHE), 9, III

**15. REGULATORY INFORMATION****EPA FIFRA INFORMATION**

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION. Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin and clothing.

**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):**

Acute Health

# SAFETY DATA SHEET

## 2,4-D Granules

### Section 313 Toxic Chemical(s):

2,4-D 2-ethylhexyl ester (CAS No. 1928-43-4) 28 – 30% by weight in product

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


None

### RCRA Waste Code:

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

### State Information:

Other state regulations may apply. Check individual state requirements.

**California Proposition 65:**  **ATTENTION:** This product can expose you to chemicals including crystalline silica (quartz), which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

## 16. OTHER INFORMATION

### National Fire Protection Association (NFPA) Hazard Rating:

**Rating for this product:** Health: 2 Flammability: 0 Reactivity: 0

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

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS 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.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

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