



SAFETY DATA SHEET

DREXEL DE-ESTER™ LV4

Section 1: Material Identification

Product Name: Drexel De-Ester™ LV4

EPA Reg No.: 19713-345

CAS NO: 1928-43-4

Formula: C₁₀H₂₂Cl₂NO₃

Company: Drexel Chemical Company
1700 Channel Avenue
Memphis, TN 38106

Synonyms: 2,4-D ethylhexyl ester, 2,4-D 2EHE; 2,4-Dichlorophenoxyacetic acid, Isooctyl (2-ethylhexyl ester)

Identifiers:

- EINECS:** 217-673-3
- RTECS No.:** AG8400000
- DOT label:** UN 3082, Environmentally hazardous substances, liquid, n.o.s. (See Section 14)

Emergency Telephone Number:

CHEMTREC	Drexel Chemical Co.
Tel: 1-800-424-9300	901-774-4370

This product is an EPA FIFRA registered pesticide. Some of the 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 Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide.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.

Section 2: Hazard Identification (As defined by the OSHA Hazard Communication Standard, 29)

GHS Classification:

Health Hazards:	Acute oral	Category 4
	Acute Inhalation	Category 4
	Skin Irritation	Category 2
	Eye Irritation	Category 2B
	Specific organ toxicity – single exposure	Category 3
	Specific organ toxicity –	

repeated exposure	Category 2
Aspiration hazard	Category 1
Aquatic acute toxicity	Category 1
Aquatic toxicity long term	Category 2

GHS Label Elements:

Signal word:

Warning



Hazard statements:

Harmful if swallowed
Harmful if inhaled.
Causes skin irritation.
Causes eye irritation.
May cause respiratory irritation.
May cause damage to organs (liver, kidneys) through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.
Very toxic to aquatic life.
Toxic to aquatic life with long lasting effects.

Precautionary statement:

Prevention:

Do not eat, drink or smoke when using this product.
Avoid breathing vapors or mist. Use only outdoors or in a well-ventilated area.
Wash thoroughly after handling. Use gloves chemically resistant to this material.
Examples of preferred glove barrier materials include: Neoprene, Nitrile/butadiene rubber (“nitrile” or “NBR”) or Polyvinyl chloride (“PVC” or “vinyl”).
Avoid release to environment.

Response:

If swallowed: Immediately call a POISON CENTER/doctor. DO NOT induce vomiting. Call a poison center/doctor if you feel unwell. Rinse mouth.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call Poison Control Center or doctor if you feel unwell.
If on skin: Wash with plenty of water while removing contaminated clothing and shoes. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.
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/attention.
Collect spillage.

Storage:

Store in a well ventilated place.
Keep container closed.
Store locked up.

Disposal:

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.

Section 3: Composition Information

<u>Components</u>	<u>% By Wt.</u>	<u>OSHA PEL:</u>	<u>ACGIHTLV:</u>
Active Ingredient:			
2,4-dichlorophenoxyacetic acid, 2-ethylhexyl ester:	65.40%	10 mg/m ³	10 mg/m ³
Inert Ingredients:	34.60%	N/A	N/A

Section 4: First-Aid Measures

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.

Skin Contact: Immediately flush skin with water while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Destroy contaminated leather items such as shoes, belts, and watchbands.

Eye Contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

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

Notes to Physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Section 5: Fire Fighting Measures

Extinguishing Media: Water fog or fine spray, Dry chemical fire extinguishers, Carbon dioxide fire extinguishers, Foam.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. If water is used, use a fine water or fog to avoid contamination. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Move container from fire area if this is possible without hazard. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during firefighting operations. If contact is likely, change to full chemical resistant firefighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Unusual Fire and Explosion Hazards: Container may rupture from gas/vapor generation in a fire situation. Dense smoke is produced when product burns.

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to trace amounts of: Carbon monoxide, Carbon dioxide as well as other asphyxiates.

NFPA: **Health:** **Fire:** **Reactivity:**
 2 1 0

(Rating: 4-Extreme, 3-High, 2-Moderate, 1-Slight, 0-Insignificant)

Section 6: Accidental Release Measures

Steps to be taken if Material is Released or Spilled:

- Contain spilled material if possible. Small spills: Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Drexel Chemical Co. for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

Personal Precautions:

- Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Section 7: Handling and Storage

KEEP OUT OF REACH OF CHILDREN

Handling: **General Handling:** Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Do not swallow. Avoid breathing vapor. Use with adequate ventilation. Keep container closed. Keep away from heat, sparks and flame. Keep out of reach of children. See Section 8, Exposure Controls and Personal Protection.

Storage: Store in a cool, dry areas designated specifically for pesticides and away from heat sources. Keep in original containers and keep containers closed when not in use. Do not store below 45°F (7°C). If frozen or crystallized, slowly warm to 80 to 90°F and re-dissolve by rolling or shaking container before use. Do not store near children, food, foodstuffs, drugs or potable water supplies.

Section 8: Exposure Controls / Personal Protection

Exposure Limits:

<u>Component</u>	<u>List</u>	<u>Type</u>	<u>Value</u>
(2,4-D, 2-ethylhexyl ester)	ACGIH	TWA	10 mg/m ³
(based on 2,4-D limit)	OSHA Table	PEL	10 mg/m ³

THIS SECTION IS FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Personal Protection:

Eye/Face Protection: Wear/Use protective eyeglasses or chemical safety goggles.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Safety shower should be located in immediate work area. 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.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene, Nitrile/butadiene rubber ("nitrile" or "NBR") or Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator such as an OSHA/NIOSH-approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls:

Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations and is preferred.

Section 9: Physical and Chemical Properties

Physical State:	Liquid (Emulsifiable Concentrate)
Color:	Slight amber to yellow brown liquid
Odor:	Mild to pungent
Flash Point:	>100°C
Vapor Pressure (mmHg):	N/A
Boiling Point:	>315°C
Vapor Density (air = 1):	1.42
Bulk Density (H2O = 1):	8.66 lbs. /gal.
Freezing Point:	N/A
Solubility in water (wt % - weight):	Emulsifiable
pH:	3.10
Viscosity:	72.2 cP

Section 10: Stability and Reactivity

Stability/Instability: Thermally stable at typical use temperatures and in closed containers.

Conditions to Avoid: Avoid heat of open flame. Avoid temperatures above 150°C (302°F). Keep away from strong acids.

Incompatible Materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous Polymerization: Will not occur

Thermal Decomposition: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide, Carbon dioxide, Chlorine-containing compounds.

Section 11: Toxicological Information

Acute Toxicity:

Ingestion:

LD50, Rat >1,000 mg/kg

Dermal (rat):

LD50, (rat) >2,000 mg/kg

Inhalation:

LC50,(24h), Aerosol, Rat >3.0 mg/l

Eye Irritation: (rabbit):

Slight irritation

Skin Irritation (rabbit):

Non- to slight

Sensitization Skin:

Non-sensitizer

Did not cause allergic skin reactions when tested in guinea pigs.

Repeated Dose Toxicity:

In animals, effects have been reported on the following organs: Liver, Kidney, Gastrointestinal tract, Muscles. Observations in animals include: Gastrointestinal irritation, Vomiting.

Chronic Toxicity and Carcinogenicity:

- Various animal cancer tests have shown no reliably positive association between 2,4-D exposure and cancer. Epidemiology studies on herbicide use have been both positive and negative with the majority being negative.

Carcinogenicity Classifications:

<u>Component</u>	<u>List</u>	<u>Classification</u>
Acetic acid, (2,4-	ACGIH	Not classifiable as a human carcinogen
Dichlorophenoxy) 2-	NTP	Not classifiable as a human carcinogen
Ethylhexyl ester	IARC	List as possible carcinogen Class 2B

Developmental Toxicity: Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals. 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.

Reproductive Toxicity: In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring.

Genetic Toxicology: In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were predominantly negative.

Section 12: Ecological Information

ENVIRONMENTAL FATE: 2,4-dichlorophenoxy acetic acid, 2-ethylhexyl ester:

- This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters.

Movement & Partitioning: Bioconcentration potential is low (BCF less than <100 or log Pow less than 3). Potential for mobility in soil is high (Koc between 50 and 150).

Henry's Law Constant (H): 1.02E-08 atm*m³/mole; 25°C Estimated.

Partition coefficient, soil organic carbon/water (Koc): 48 Estimated.

Persistence and Degradability: 2,4-D has low soil persistence

- Under aerobic soil conditions the half-life is 4-7 days.

Stability in Water (1/2-life):

- 2,4-D; pH 2.49 (1% aqueous suspension)
- In aquatic environments, microorganisms readily degrade 2,4-D. Rates of breakdown increase with increased nutrients, sediment load, and dissolved organic carbon. Under oxygenated conditions the half-life is 1-2 weeks.

ECOTOXICITY: Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 is >100 mg/L in the most sensitive species tested). Material is moderately toxic to birds on an acute basis (LD50 between 51 and 500 mg/kg). Material is practically non-toxic to birds on a dietary basis (LC50 >5000 ppm).

Fish Acute & Prolonged Toxicity:

- Bioaccumulation factor in fish is 0.1-0.47
- LC50, rainbow trout (*Oncorhynchus mykiss*), static, 96 h: 250 mg/l
- LC50, fathead minnow (*Pimephales promelas*), static, 96 h: 344 mg/l
- EC50, bluegill (*Lepomis macrochirus*), static, 96 h: 525 mg/l

Aquatic Invertebrate Acute Toxicity:

- LC50, water flea (*Daphnia magna*), 185 mg/l
- EC50, eastern oyster (*Crassostrea virginica*), flow-through, 96 h, shell growth inhibition: 136 mg/l
- LC50, pink shrimp (*Penaeus duorarum*) sp., 182 mg/l
- LC50, tidewater silverside (*Menidia beryllina*), 470 mg/l

Aquatic Plant Toxicity:

- EC50, blue-green algae (*Anabaena flosaquae*): 153 mg/L
- EC50, green algae (*Selenastrum capricornutum*) 5 d: 66.5 mg/l
- EC50, diatom *Navicula* sp., static, biomass growth inhibition, 5 d: 5.28 mg/l
- EC50, duckweed *Lemna* sp., static, Number of fronds, 14 d: .58 mg/L

Toxicity to Non-mammalian Terrestrial Species: Moderately toxic

- Dietary LC50, Bobwhite (Colinus virginianus): >5,620 ppm
- Dietary LC50, Mallard (Anas platyrhynchos): >5,620 ppm
- Acute oral LD50, Bobwhite quail, <500 mg/kg; Mallard duck >5,000 ppm

Section 13: Disposal Considerations

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.

Section 14: Transport Information

DOT:

- **<26 gallons per complete package:** Non-regulated – See 49 CFR 173.132(b) (3) & 172.101 Appendix A
- **≥26 but <119 gallons per complete package:** UN 3082, Environmentally hazardous substances, liquid, n.o.s. (2,4-D Ester), 9, PG-III, RQ 100 lbs.
- **≥119 gallons per complete package:** UN 3082, Environmentally hazardous substances, liquid, n.o.s. (2,4-D Ester), 9, PG-III, Marine Pollutant, RQ 100 Lbs.

IMDG: UN 3082, Environmentally hazardous substances, liquid, n.o.s. (2,4-D Ester), 9, PG-III, Marine Pollutant

IATA: <26 gallons per complete package: Non-regulated

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15: Regulatory Information

OSHA Hazard Communication Standard:

- This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
- **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 chemical. The hazard information required on the pesticide label is listed out below. The pesticide label also includes other important information, including directions for use.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312:

Immediate (Acute) Health Hazard: Yes
Delayed (Chronic) Health Hazard: Yes
Fire Hazard: No
Reactive Hazard: No
Sudden Release of Pressure Hazard: No

U.S. FEDERAL REGULATIONS

- **TSCA Inventory:** Drexel De-Ester LV4 is exempted from TSCA as it is solely for FIFRA regulated use.
- **Sec. 313. Toxic Chemical(s):** 2,4-D 2-ethylhexyl ester (CAS 1928-43-4) 65.4% by weight in product expressed as Acetic Acid (2,4-Dichlorophenoxy) - CAS No, 94-75-7) - 43.4% 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:** Under RCA, 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.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103:

- This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4

<u>Component</u>	<u>CAS #</u>	<u>Amount</u>
Acetic acid, (2,4-dichlorophenoxy)	94-75-7	43.4%

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986):

- This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Toxic Substances Control Act (TSCA):

- All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

Hazard Rating System:

NFPA: **Health:** **Fire:** **Reactivity:**
 2 1 0

(Rating: 4-Extreme, 3-High, 2-Moderate, 1-Slight, 0-Insignificant)

Section 16: Other Information

Drexel Chemical Company recommends that each customer or recipient of this SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown below. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific SDSs, we are not and cannot be responsible for SDSs obtained from any source other than ourselves. If you have obtained an SDS from another source or if you are not sure that the SDS you have is current, please contact us for the most current version.

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