Material Safety Data Sheet

FOR EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT, CALL:
CHEMTREC 1-800-424-9300

Section 1—Chemical Product and Company Identification

Product Name: 2,4-D LV4
Common Name: 2-ethylhexyl ester of 2,4-Dichlorophenoxyacetic acid
Chemical Description: Phenoxy herbicide

Manufacturer’s Name: WINFIELD SOLUTIONS, LLC
P. O. Box 64589
St. Paul, MN 55164-0589

Medical Emergency Telephone Number:
1-877-424-7452
MSDS Revision Date: 05/03/2010
Supersedes version dated 09/18/2007

Section 2—Hazards Identification

Emergency Overview: Product may cause oxygen deficiency in enclosed spaces; follow all OSHA regulations pertaining to enclosed space entry. See health effects below. Hazardous chemical. Amber liquid with phenolic odor. Material is slightly toxic to avian and aquatic organisms.

CAUTION: Keep out of reach of children.

Route(s) of Entry: Eyes, Inhalation, Skin, and Ingestion.

Health Hazards (Acute):
Inhalation: Single exposure to vapors is not likely to be hazardous.
Eyes: May cause irritation and redness. Corneal injury is unlikely.
Skin: Contact may cause irritation. Prolonged or repeated exposure may cause skin irritation or even a burn, and may result in absorption of harmful amounts.
Ingestion: Harmful if swallowed, may cause gastrointestinal irritation.

Health Hazards (Chronic): Excessive exposure may cause liver, kidney, gastrointestinal and muscular effects. Signs and symptoms of excessive exposure may be nausea and/or vomiting and abdominal cramps and/or diarrhea. 2, 4-Dichlorophenoxy acetic acid did not cause cancer in long-term studies.

Medical Conditions Generally Aggravated by Exposure: None known.

Section 3—Composition Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>% (wt)</th>
<th>CAS reg. #</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-Dichlorophenoxyacetic acid, iso-octyl ester</td>
<td>70.96%</td>
<td>1928-43-4</td>
</tr>
<tr>
<td>Inert Ingredients*</td>
<td>20.04%</td>
<td></td>
</tr>
</tbody>
</table>

*Trade secret information available as provided in 29 CFR 1910.1200(i)

NFPA HAZARD RATING:
0 Least
1 Slight 2 Health
2 Moderate 2 Flammability
3 High 0 Reactivity
4 Severe

Section 4—First Aid Measures

Inhalation: Remove person to fresh air and support breathing as needed. Seek medical attention if irritation persists.

Ingestion: Seek medical attention or call a poison control center immediately. Do not induce vomiting unless directed to do so by medical personnel.

Eyes: Flush with clean water for at least 15 minutes. Lift eyelids to facilitate irrigation. Seek medical attention if eye irritation persists.

Skin: Remove contaminated clothing and wash before re-using. Flush skin with water, and then wash with soap and water. Seek medical attention if skin becomes irritated.

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.

After first aid, get appropriate in-plant, paramedic, or community medical support.
Have the product container or label with you when calling a Poison Control Center or doctor, or going for treatment.
Section 5—Fire and Explosion Hazard Data

Extinguishing Media: Materials suitable to surrounding fire.

Special Fire Fighting Procedures: Wear self-contained breathing apparatus and full bunker gear. Smoke and fumes from fire may contain hazardous components. If water is used, use a soft fog to avoid spreading contamination. Contain water to prevent entry into water supplies.

Hazardous Combustion Products: Toxic gases may be formed in a fire situation. Carbon monoxide and other asphyxiates may form as well.

Unusual Fire and Explosion Hazards: Closed containers may explode from vapor expansion in high heat. Contain run-off by diking to prevent contamination of water supplies. DO NOT USE WATER TO EXTINGUISH FIRE unless unavoidable to prevent spreading of material.

Section 6—Accidental Release Measures

Small Spills: Clean-up personnel should protect against mist inhalation and skin contact. Avoid generating mists. Spills should be cleaned up immediately to prevent spreading.

Large Spills: Clean-up personnel should protect against mist inhalation and skin contact. Avoid generating mist.

Containment: Do not release into sewers or waterways. Dike spills to prevent contamination to water supplies. Contain spills and absorb liquids by covering with clay or other absorbent material. Vacuum, scoop, or sweep up waste and place in a container for disposal.

Section 7—Precautions for Safe Handling and Use

Precautions to Be Taken in Handling and Storage: Store in cool, dry areas away from children, feed and food products and sources of heat designated specifically for pesticides. Immediately clean up spills that occur during handling or storage. Protect from freezing. Keep containers closed when not in use. Do not store in aluminum or metal vessels. Do not store in direct sunlight.

Other Precautions: Consult Local, State, and Federal regulations pertaining to storage and disposal.

Section 8—Control Measures/Personal Protection

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear an MSHA/NIOSH-approved respirator.

Ventilation: Local Exhaust: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs. Local exhaust ventilation is preferred.

Exposure guidelines: 2, 4-Dichlorophenoxy acetic acid: ACGIH TLV and OSHA PLV: 10 mg/m3.

Protective Gloves: Wear chemically protective gloves such as neoprene or nitrile rubber or barrier laminate or viton.

Eye Protection: Wear protective eyeglasses or chemical safety goggles. Contact lenses are not eye protective devices.

Other Protective Clothing or Equipment: Wear chemically protective boots, aprons, and gauntlets to prevent prolonged or repeated skin contact.

Work/Hygienic Practices: Never eat, drink, nor smoke in work areas. Practice good hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9—Physical/Chemical Characteristics

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity (H₂O=1)</td>
<td>1.0432</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure (mm Hg)</td>
<td>Not established</td>
<td></td>
</tr>
<tr>
<td>Freezing Point</td>
<td>Not established</td>
<td></td>
</tr>
<tr>
<td>Vapor Density (Air=1)</td>
<td>Not established</td>
<td></td>
</tr>
<tr>
<td>Boiling Point</td>
<td>181°C</td>
<td></td>
</tr>
<tr>
<td>Solubility in Water (wt %)</td>
<td>Soluble</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>Not established</td>
<td></td>
</tr>
<tr>
<td>Appearance and odor</td>
<td>Amber colored liquid with slight phenolic odor</td>
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<tr>
<td>Flash Point</td>
<td>160°F TOC</td>
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Section 10—Reactivity Data

Stability: Product stable at room temperature in closed containers under normal storage and handling conditions. Avoid temperatures near or above flash point.

Chemical Incompatibilities: Strong bases, acids and oxidizing materials.

Conditions to Avoid: Avoid excessive heat.

Hazardous Decomposition Products: Hydrogen chloride under fire conditions.

Hazardous Polymerization: Will not occur.
Section 11—Toxicological Information

**Eye Effects:** Slightly irritating

**Skin Effects:** LD50 > 4000 mg/kg in rabbits.

**Acute Inhalation Effects:** Not determined

**Acute Oral Effects:** LD50 = 896 mg/kg (Rats)

**Chronic Effects:** Not determined

**Carcinogenicity:** Not determined

**Mutagenicity:** For 2, 4-Dichlorophenoxy acetic acid, animal mutagenicity studies were predominately negative. In-vitro mutagenicity studies were negative.

**Teratogenicity:** Not determined

**Carcinogenicity**

- NTP: No
- IARC: Yes 2B
- OSHA: No

Section 12—Ecological Information


**Degradation and persistence:** Biodegradation under aerobic static laboratory conditions is high: BOD20 or BOD28/ThOD > 40%. BOD5 = 0.84 p/p. BOD10 = 0.92 p/p. BOD20 = 1.32 p/p. ThOD = 1.87 p/p. Degradation is expected in the soil environment. Chemical degradation (hydrolysis) is expected in the environment within minutes to hours. Biodegradation may occur under aerobic conditions.

**Ecotoxicology:** Material is slightly toxic to aquatic organisms on an acute basis in most sensitive species. Acute LC50 = 18.7 mg/L for water flea (Daphnia magna), > 0.14 mg/L for grass shrimp (Palaemonetes pugio), > 5.0 mg/L for fathead minnow (Pimephales promelas), for rainbow trout (Oncorhynus mykiss), and for bluegill (Lepomis macrochirus). MATC = 0.16 mg/L in fathead minnow, = 0.020 mg/L in water flea. Acute LC50 > 0.24 mg/L for tidewater silverside (Menidia beryllina). Acute EC50 > 0.21 mg/L for shell deposition inhibition in eastern oyster (Crassostrea virginica). Material is slightly toxic to birds on an acute basis. Material is practically non-toxic to birds on a dietary basis. Acute oral LD50 = 663 mg/kg for mallard (Anas platyrhynchos). Diet AC50 > 0.24 mg/L for bobwhite (Colinus virginianus) and for mallard. Growth inhibition EC50 > 30 mg/L for blue-green alga (Anabaena flos-aquae) and green alga (Selenastrum capricornutum), = 4.1 mg/L for diatom (Navicula sp.), = 0.23 mg/L for marine diatom (Skeletonema costatum), and = 0.5 mg/L for duckweed (Lemna sp.).

Section 13—Disposal Considerations

**Waste:** Dispose of in accordance with applicable Federal, state and local laws and regulations.

**Container:** Triple rinse (or equivalent) the empty containers. Then offer for recycling or reconditioning.

**RCRA Characteristics:** U240 Acetic acid, (2,4-dichlorophenoxy)-, salts & esters

Section 14—Transport Information

**Package Sizes:** 30 and 55 gallon drums – RQ, Combustible liquid, N.O.S. (Contains Fuel Oil, 2,4-D Ester), NA 1993, PG III

**Package Sizes:** Bulk over 119 gallons – RQ, Combustible liquid, N.O.S. (Contains Fuel Oil, 2,4-D Ester), NA 1993, PG III

**Proper Shipping name:** Combustible liquid, N.O.S.

**ERG Number:** 128

**Placard (>119 gallons):** Combustible Numeric: 1993

Section 15—Regulatory Information

**TSCA Inventory:** All ingredients are on the TSCA inventory.

**OSHA hazard communication standard:** Hazardous.

**SARA Title III, Section 302:** No components are subject to reporting.

**SARA Title III, Section 311/312:** Immediate: Yes Delayed: No

**Sudden Release of Pressure:** No Fire: No Reactive: No

**SARA Title III, Section 313:** This product contains the following toxic chemicals subject to the reporting requirements of section 313 of The Emergency Planning and Community-Right-To-Know Act of 1986 (40CFR 372); 2,4-Dichlorophenoxyacetic acid, iso-octyl ester 70.96 percentage by weight.

**CERCLA:** 2,4-D Acid RQ 100 lbs (RQ reached with 26.32 lbs of product — each gallon of product contains 3.8 lbs 2,4-D Acid)

**PROPOSITION 65:** WARNING: This product may contain chemicals known to the State of California to cause cancer and birth defects or reproductive harm.
<table>
<thead>
<tr>
<th>Section 16—Other</th>
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<tr>
<td><strong>Disclaimer:</strong> The information presented herein is based on available data from reliable sources and is correct to the best of Winfield Solutions' knowledge. Winfield Solutions, LLC makes no warranty, express nor implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.</td>
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