

MATERIAL SAFETY DATA SHEET

SENTRY 2,4-D LV 4 HERBICIDE



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION
UNITED SUPPLIERS, INC.
BOX 538
Eldora, IA 50627

EPA REG. NO.: 62719-9-33270

PRODUCT NAME: SENTRY 2,4-D LV 4 HERBICIDE
CHEMICAL NAME: 2,4-Dichlorophenoxy acetic acid, 2-ethylhexyl ester
CHEMICAL FAMILY: Herbicide

EMERGENCY CONTACT: In the event of chemical emergencies involving a spill, leak, fire exposure, or accident involving chemicals -- call **CHEMTREC (800) 424-9300**.

2. HAZARDS IDENTIFICATION SUMMARY

KEEP OUT OF REACH OF CHILDREN – CAUTION: Harmful If Swallowed Or Absorbed Through Skin, Causes Moderate Eye Irritation, Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Skin Reactions In Some Individuals

3. COMPOSITION, INFORMATION ON INGREDIENTS

<u>Chemical Ingredients:</u>	<u>Percentage by Weight:</u>	<u>CAS No.</u>	<u>PEL (Units)</u>
2,4-Dichlorophenoxy acetic acid, 2-ethylhexyl ester	65.9	1928-43-4	Not listed
Other ingredients including	34.1	-----	-----
Kerosene		8008-20-6	Not Listed
Polyglycol 26-3 (ethylene oxide)		69029-39-6	10mg/M ³

A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

*Absorbed rapidly through the skin in molten or heated liquid form in amounts that have caused rapid death in humans.

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water for 15-20 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 on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If Swallowed: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

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 treatment advice.

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT have the product container or label with you when calling a poison control center or doctor.

Notes to Physician: Contains petroleum distillate - vomiting may cause aspiration pneumonia.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F/Test Method): 150°F

FLAMMABLE LIMITS (LFL & UFL): Not established

EXTINGUISHING MEDIA: Use foam, dry chemical, carbon dioxide, water spray or fog.

HAZARDOUS COMBUSTION PRODUCTS: Toxic fumes may be emitted in a fire situation.

SPECIAL FIRE FIGHTING PROCEDURES: Evacuate area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products. Fire exposed containers can build up pressure and should be kept cool with water spray if possible. Explosive vapor could form from ruptured containers. Dike and collect water used to fight fire to prevent environmental damage due to run off. Foam or dry chemical fire extinguishing systems are preferred to prevent environmental damage from excessive water runoff.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Can burn in fire, releasing irritating and toxic gases due to thermal decomposition or combustion.

FIRE FIGHTING EQUIPMENT: Self-contained breathing apparatus with full facepiece. Full fire fighting turn-out gear (Bunker gear).

HAZARDOUS COMBUSTION PRODUCTS: Normal combustion forms carbon dioxide, water vapor and may produce oxides of carbon, nitrogen and phosphorous.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: In case of leak or spill, contain material and dispose as waste. Do not contaminate any body of water. Pick up spilled liquid with absorbent material and sweep up for disposal. Place it and damaged unusable containers in appropriate containers for proper waste treatment. Check local, state and federal regulations for proper disposal. **NOTE:** Prevent spilled material from flowing onto adjacent land, or into municipal sewers and open bodies of water. Always wear proper protective equipment when working with the product.

7. HANDLING AND STORAGE

HANDLING: Wash hands after handling, and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove 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: Store in original container with lid tightly closed, away from children and animals. Keep away from water, foodstuffs, feed or seed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Ventilation: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

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, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Personal Protective Equipment (PPE):

Eye/Face Protection: Use chemical goggles. Eye wash fountain should be located in immediate work area.

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. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Brown liquid, musty

SPECIFIC GRAVITY (Water=1): 1.14 – 1.20 g/ml

VAPOR PRESSURE: Not established

PERCENT VOLATILE (by volume): Not established

Note: These physical data are typical values based on material tested but may vary from sample to sample.

Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

SOLUBILITY: soluble **pH:** 8.29 (1%)

BULK DENSITY: 9.50 – 10.00 lbs/gal.

BOILING POINT: Not established

EVAPORATION RATE: Not established

10. STABILITY AND REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID: Avoid elevated temperatures as the active ingredient will decompose.

IMCOMPATIBILITY: Avoid contact with oxidizers and acids.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: May include oxides of carbon or nitrogen, hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Acute Oral LD₅₀: 3,129 mg/kg (Rat, female)

Acute Dermal LD₅₀: >5,000 mg/kg (Rat, male & female)

Eye Irritation: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

MATERIAL SAFETY DATA SHEET

SENTRY 2,4-D LV 4 HERBICIDE

Skin Irritation: Prolonged contact may cause slight skin irritation with local redness. Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage. May cause more severe response on covered skin (under clothing, gloves).

Inhalation LC₅₀: >5.34 mg/L (Rat, male & female)

Skin sensitization: Not a contact sensitizer

Carcinogenic Potential: 2,4-Dichlorophenol IARC; 2B; Possibly carcinogenic to humans

Developmental Toxicity

For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. Did not cause birth defects in laboratory animals.

Reproductive Toxicity

For similar active ingredient(s). 2,4-Dichlorophenoxyacetic acid. In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring.

Genetic Toxicology

For the active ingredient(s): In vitro genetic toxicity studies were predominantly negative. For the active ingredient(s): Animal genetic toxicity studies were inconclusive

12. ECOLOGICAL INFORMATION

Data for Component: **2,4-D Dimethylamine Salt**

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): 1.45E-16 atm*m3/mole; 25 °C Estimated using a bond contribution method.

Partition coefficient, n-octanol/water (log Pow): 0.65 Measured

Partition coefficient, soil organic carbon/water (Koc): 72 - 136 Measured

Bioconcentration Factor (BCF): 0.1 - 0.47; fish; Measured

Persistence and Degradability

Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

Stability in Water (1/2-life):

0.5 - 11 d

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
100 %	100 %	100 %	

Chemical Oxygen Demand: 0.72 mg/mg

Data for Component: **Ethylenediamine tetraacetic acid**

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): 7.7E-16 atm*m3/mole Estimated.

Partition coefficient, n-octanol/water (log Pow): -5.005 Estimated.

Partition coefficient, soil organic carbon/water (Koc): 98

Bioconcentration Factor (BCF): 1.1; fish; Measured

Persistence and Degradability

Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
37 %	14 d	OECD 302B Test

Theoretical Oxygen Demand: 1.37 mg/mg

Data for Component: **Dimethylamine**

Movement & Partitioning

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).

Henry's Law Constant (H): 1.77E-05 atm*m3/mole; 25 °C Measured

Partition coefficient, n-octanol/water (log Pow): -0.38 Measured

Partition coefficient, soil organic carbon/water (Koc): 13 - 435 Estimated.

Distribution in Environment: Mackay Level 1 Fugacity Model:

MATERIAL SAFETY DATA SHEET

SENTRY 2,4-D LV 4 HERBICIDE

Air	Water.	Biota	Soil	Sediment
38 %	62 %	0 %	0 %	0 %

Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
6.553E-11 cm ³ /s	0.163 d	Estimated.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
30 - 100 %	14 d	OECD 301C Test
77 %	13 d	OECD 301E Test
51 %	14 d	OECD 301C Test

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
64 %		100 %	

Theoretical Oxygen Demand: 2.06 mg/mg

Data for Component: **2,4-Dichlorophenol**

Movement & Partitioning

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Potential for mobility in soil is low (Koc between 500 and 2000).

Henry's Law Constant (H): 2.19E-06 atm*m³/mole; 25 °C Measured

Partition coefficient, n-octanol/water (log Pow): 3.06 Measured

Partition coefficient, soil organic carbon/water (Koc): 550 Measured

Bioconcentration Factor (BCF): 34; fish; Measured

Persistence and Degradability

Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
2.98E-12 cm ³ /s	3.59 d	Estimated.

Biological oxygen demand (BOD):

BOD 5	BOD 10	BOD 20	BOD 28
76 %	77 %	77 %	

Theoretical Oxygen Demand: 1.18 mg/mg

ECOTOXICITY

Data for Component: **2,4-D Dimethylamine Salt**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm). Material is moderately toxic to birds on an acute basis (LD50 between 51 and 500 mg/kg).

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), static, 96 h: 100 - 420 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, static, 48 h: 4 mg/l

Aquatic Plant Toxicity

ErC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), 5 d: 51.2 - 66.5 mg/l

EC50, diatom *Navicula* sp., biomass growth inhibition, 5 d: 4.6 - 5.28 mg/l

EC50, duckweed *Lemna* sp., biomass growth inhibition, 14 d: 0.58 mg/l

Toxicity to Above Ground Organisms

oral LD50, bobwhite (*Colinus virginianus*)

dietary LC50, bobwhite (*Colinus virginianus*)

Data for Component: **Ethylenediamine tetraacetic acid**

MATERIAL SAFETY DATA SHEET

SENTRY 2,4-D LV 4 HERBICIDE

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, fathead minnow (*Pimephales promelas*), static, 96 h: 59.8 - 300 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, static, 48 h, immobilization: 113 mg/l

Data for Component: Dimethylamine

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), 96 h: 17 - 118 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, 24 h, immobilization: 48 - 105 mg/l

Aquatic Plant Toxicity

EC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), biomass growth inhibition, 96 h: 9 mg/l

Toxicity to Micro-organisms

NOEC; bacteria, Growth inhibition (cell density reduction): 1,000 mg/l

Data for Component: 2,4-Dichlorophenol

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, fathead minnow (*Pimephales promelas*), flow-through: 6.7 - 11.6 mg/l

LC50, goldfish (*Carassius auratus*), flow-through, 4 h: 1.24 - 1.76 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, 24 h, immobilization: 2.50 - 6.0 mg/l

EC50, water flea *Daphnia magna*, 48 h: 1.4 - 5.1 mg/l

Aquatic Plant Toxicity

LC50, alga *Scenedesmus* sp., biomass growth inhibition, 48 h: 11.5 mg/l

Toxicity to Micro-organisms

EC50; activated sludge, respiration inhibition: 52.5 mg/l

EC50; bacteria: 55 - 75 mg/l

Toxicity to Soil Dwelling Organisms

LC50, Earthworm *Eisenia foetida*, adult, 2 d: 0.0025 mg/cm²

13. DISPOSAL CONSIDERATIONS

PESTICIDE DISPOSAL: Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures. Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed.

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

DOT HAZARD CLASS: 9

UN NUMBER: 3082

DOT PACKING GROUP: III

DOT PRIMARY/SECONDARY LABEL: 9 / None

DOT PRIMARY/SECONDARY PLACARD: 9 / None

15. REGULATORY INFORMATION

NFPA RATINGS: Least = 0 Slight = 1 Moderate = 2 High = 3 Severe = 4

Ratings for this product: Health – 2 Flammability – 0 Instability – 1 Special Hazards – None Specified

SARA Title III Hazard Category: Immediate Y Fire N Sudden Release of Pressure N
Delayed Y Reactive N

MATERIAL SAFETY DATA SHEET

SENTRY 2,4-D LV 4 HERBICIDE

Reportable Quantity (RQ) under U.S. CERCLA: None present which could reach a reportable quantity.

SARA, Title III, Section 313: Dimethylamine CAS #124-40-3 1%

CA Proposition 65: Not listed

16. OTHER

Date of Issue: 09/22/10 Supersedes: New

DISCLAIMER OF LIABILITY

United Suppliers, Inc. makes no warranty, representation, or guarantee as to the accuracy, sufficiency, or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity, and suitability of his own use, handling, and disposal of this product. Since actual use by others is beyond our control; no warranty, expressed or implied, is made by United Suppliers, Inc. as to the effects of such use, the results to be obtained, or the safety and toxicity of this product, nor does United Suppliers, Inc. assume liability arising out of the use by others of this product referred to herein. The data in this MSDS relates only to the specific material designated herein and does not relate to use in combination with any other materials or in any process.