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DuPont
Material Safety Data Sheet

Page 1

"DuPont" "LINEX" 4L HERBICIDE
M0000544 Revised 28-NOV-2007

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"LINEX" is a registered trademark of DuPont.

"DuPont" is a trademark of DuPont.

Tradenames and Synonyms

LOROX L
B11703457
DPX-Z0326

Tradenames and Synonyms (Remarks)

Inactive EPA Reg. No.: 1812-245 (Griffin)

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.
302-774-1000)
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S.
703-527-3887)
Medical Emergency : 1-800-441-3637 (outside the U.S.
302-774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
*LINURON [3-(3,4-dichlorophenyl)-1-methoxy-1-methylurea]	330-55-2	40.6
INERT INGREDIENTS (Including percentages of the following)		59.4
*Ethylene Glycol	107-21-1	8

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Emergency Overview

CAUTION. Harmful if swallowed or absorbed through the skin. Avoid contact with eyes, skin, or clothing. Remove contaminating clothing and wash clothing before reuse.

Potential Health Effects

Data from animal studies suggest that repeated or prolonged exposure to Linuron Technical by ingestion may cause red blood cell destruction.

There are no reports of skin sensitization.

ETHYLENE GLYCOL

The estimated lethal oral dose of Ethylene Glycol in humans is 100 mL.

Immediate effects of inhalation overexposure to Ethylene Glycol may include irritation of the nose and throat with sneezing, sore throat or runny nose. Gross overexposure may cause pulmonary edema (body fluid in the lungs) with cough, wheezing, abnormal lung sounds, possibly progressing to severe shortness of breath and bluish discoloration of the skin; symptoms may be delayed.

Immediate effects of overexposure to Ethylene Glycol by inhalation or ingestion may include headache and nausea. Gross overexposure may cause central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness; convulsions; altered kidney function which may be accompanied by abnormal urine volume, low back pain, discomfort or edema; kidney failure; deposits of calcium oxalate in the brain, spinal cord and kidneys; liver abnormalities; high blood pressure; irregular heart beat with a strange sensation in the chest, "heart thumping", apprehension, lightheadedness, feeling of fainting, dizziness, weakness, sometimes progressing to loss of consciousness and death. Other effects may include congestive heart failure; retention of acid in the blood, making oxygen less available in the blood stream and leading to symptoms of increased pulse rate, nausea, vomiting, confusion and weakness which may progress to loss of consciousness; low blood sugar; low blood calcium with muscle twitching; involuntary movement of the eyes; facial paralysis; or fatality.

No increases in chromosomal changes were noted in the circulating blood of workers exposed to Ethylene Glycol.

Increased susceptibility to the effects of Ethylene Glycol may be observed in persons with pre-existing disease of the kidneys.

(HAZARDS IDENTIFICATION - Continued)

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

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

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For medical emergencies involving this product, call toll free 1-888-441-3637.

FIRE FIGHTING MEASURES

Flammable Properties

Like most organic powders or crystals, under severe dusting conditions, this material may form explosive mixtures in air.

Extinguishing Media

Dry Chemical, CO2, Water Spray, Foam.

Fire Fighting Instructions

Wear self-contained breathing apparatus (SCBA) and full protective equipment.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus.

Spill Clean Up

Spill or Leak Procedures:

Dike Spill. Prevent material from entering sewers, waterways, or low areas. Cover spill with absorbent material such as sweeping compound or clay. Sweep up and place in suitable (fiberboard) container for later disposal.

For minor spills, leaks, etc., follow all precautions indicated on the product label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

HANDLING AND STORAGE

Handling (Personnel)

USERS SHOULD: Wash hands 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.

Handling (Physical Aspects)

Avoid breathing vapors or mists. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Do not consume food, drink, or tobacco in areas where there may become contaminated with these materials.

Storage

Do not contaminate water, food or feed by storage.

Store product in original container only. Store in a cool, dry place.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

PESTICIDE APPLICATORS & WORKERS

These workers must refer to the Product Label and Directions For Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170.

MANUFACTURING, COMMERCIAL BLENDING, & PACKAGING WORKERS

Ventilation:

Control enclosed spaces with adequate ventilation to prevent exceedance of ACGIH TLV or OSHA PEL.

Respiratory Protection:

In enclosed spaces where the TLV or PEL may be exceeded, wear NIOSH/MSHA approved dust or mist respirators.

Personal Protective Equipment

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA Chemical-resistance category selection chart.

Mixers and Loaders must wear:

- Coveralls over long-sleeved shirt and long pants.
- Chemical-resistant footwear.
- Chemical-resistant gloves made of any waterproof material such as nitrile, butyl, neoprene, and/or barrier laminate.
- Chemical-resistant apron.

Applicators and other (other than mixers and loaders) handlers must wear:

- Long sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as nitrile, butyl, neoprene, and/or barrier laminate.
- Shoes and socks.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls over short-sleeved shirt and short pants.
- Chemical-resistant gloves made of any waterproof material.
- Shoes plus socks.
- Chemical-resistant headgear for overhead exposure.

Exposure Guidelines

Applicable Exposure Limits

LINURON

PEL (OSHA) : None Established
TLV (ACGIH) : None Established

Ethylene Glycol

PEL (OSHA) : None Established
TLV (ACGIH) : Ceiling: 39.4 ppm, 100 mg/m³, aerosol, A4
AEL * (DuPont) : 50 ppm, 8 & 12 Hr. TWA, vapor
10 mg/m³, 8 & 12 Hr. TWA, particulate
Aerosol

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Vapor Pressure : Not determined
Specific Gravity : 1.18
Density : 9.8 lbs/gal
Solubility in Water : Disperses to form a suspension. The solubility of the technical material of component A is 75 ppm in water.
pH : 7.1
Boiling Point : 103°C ± 3°C
Melting Point : Not determined
Odor : Slight characteristic odor
Color : Light tan
Physical State : Liquid

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal conditions.

Incompatibility with Other Materials

None reasonably foreseeable.

(STABILITY AND REACTIVITY - Continued)

Decomposition

Thermal decomposition may release toxic and/or hazardous gases.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Oral LD50 : 3540 mg/kg (male rats)
 : 3247 mg/kg (female rats)
Dermal LD50 : > 2000 mg/kg (rabbits)
4-hr. Inhalation LC50: > 1.7 mg/L

Based on animal data, this product is not a skin or eye irritant, and is not a skin sensitizer in animals.

LINURON TECHNICAL

Repeated ingestion at high exposure levels caused increased sulfhemoglobin, reduced weight gain, central nervous system depression, growth depression, increased liver/body weight ratio, anemia, and decreased red blood cell counts; increased white blood cell counts, decreased weights (absolute and relative) of liver, kidneys and adrenals in male mice, and increased weights (absolute and relative) of liver, lung and spleen in female mice. Long term dietary administration of high doses of Linuron resulted in increased methemoglobin and sulfhemoglobin levels, hematological changes including mild hemolytic and bone marrow effects, liver changes, and organ weight changes. Animals exposed to a high dose before birth and until maturity showed weight loss and testicular effects; a few animals also exhibited eye lesions.

Tests in mice and rats demonstrate limited evidence for carcinogenic activity. Animal testing indicates that this compound does not have developmental, or reproductive effects.

Linuron does not produce genetic damage in animals or in bacterial or mammalian cell cultures.

ETHYLENE GLYCOL

Repeated ingestion exposure to Ethylene Glycol caused histopathological changes of the kidneys and bone marrow; kidney effects with oxalate crystal deposition; altered hematology, and decreased body weight. Long-term exposure caused kidney effects with oxalate crystal deposition; histopathological changes of the kidneys, liver, blood

(TOXICOLOGICAL INFORMATION - Continued)

vessels, testes, and sperm; and decreased body weight.

No deaths occurred in animals exposed by inhalation to saturated vapors of Ethylene Glycol. Repeated inhalation exposure caused histopathological changes of the liver and lungs; eye irritation; and clouding of the eye (corneal opacity).

In animal testing Ethylene Glycol has not caused carcinogenicity. Reproductive data on adult animals show interference with reproduction only at levels which produce other toxic effects in the adult animal. Tests have shown Ethylene Glycol to cause developmental toxicity in animals. Ethylene Glycol has not produced genetic damage in bacterial cultures. There are reports indicating that Ethylene Glycol does not produce genetic damage in some animal or mammalian cell culture tests; however, there are reports in the literature that suggest positive results.

ECOLOGICAL INFORMATION

Ecotoxicological Information

LINURON

AQUATIC TOXICITY:

- 96 hour LC50 - Bluegill sunfish: 9.6 mg/L.
- 96 hour LC50 - Rainbow trout: 3.3 mg/L.
- 48 hour EC50 - Daphnia magna: 1.9 mg/L.
- 72 hour, EC50, Freshwater algae: 0.028 mg/L.

AVIAN TOXICITY:

- Acute Oral LD50 - Bobwhite Quail: 940 mg/kg.
- Acute Dietary LC50 - Bobwhite Quail: 1838 ppm.
- Acute Dietary LC50 - Mallard Duck: 5224 ppm.
- Oral LC50 - Mallard duck: 3083 ppm.

ETHYLENE GLYCOL

AQUATIC TOXICITY:

- 96 hour LC50 - Fathead minnows: 49,000 mg/L.
- 48 hour EC50 - Daphnia magna: 46,300 mg/L.
- 96 hour EC50 - Algae: 10,940 mg/L.

DISPOSAL CONSIDERATIONS

Waste Disposal

Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a

(DISPOSAL CONSIDERATIONS - Continued)

violation of Federal Law. 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.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply where weather conditions favor drift from areas treated. Do not contaminate water when cleaning of equipment or disposing of equipment washwater and rinsate.

Ground Water Advisory:

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Refer to the product label for additional instructions relating to environmental precautions.

Always read and follow the product label instructions.

Container Disposal

Plastic Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Paper and Plastic Bag: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Container Refilling and Disposal (For Containers up to 250 gal): Refer to the product label for instructions.

Container Disposal for Bulk Containers: Refer to the product label for instructions.

The container must only be refilled with this pesticide product. DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE. Do not transport if the container is damaged or leaking. Disposal of this container must be in compliance with State and local regulations.

(DISPOSAL CONSIDERATIONS - Continued)

For minor spills, leaks, etc., follow all precautions indicated on the product label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

TRANSPORTATION INFORMATION

Shipping Information

DOT :

Proper Shipping Name : Not Regulated by DOT unless shipped
in bulk package or by water. See
IMO/IMDG description.

IMO/IMDG :

Proper Shipping Name : Environmentally Hazardous Substances,
Liquid, n.o.s., (Linuron 40.6%)
Hazard Class : 9
UN/NA Number : UN 3082
Packaging Group : III
Marine Pollutant : Yes
Reportable Quantity : No

IATA/ICAO : Not Regulated.

REGULATORY INFORMATION

U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : Yes
Fire : No
Reactivity : No

In the United States this product is regulated by the US Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

EPA Reg. No. 352-677

(REGULATORY INFORMATION - Continued)

OSHA:

This product is considered hazardous under the OSHA Hazardous Communication Standard (29 CFR §1910.1200).

TSCA:

All product components are on the TSCA Chemical Inventory.

CERCLA:

Reportable Quantity (RQ): Ethylene glycol: 5000 pounds

RCRA:

When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR §261.33.

State Regulations (U.S.)

California Prop. 65:

Linuron: Listed as a developmental toxin.

OTHER INFORMATION

NFPA, NPCA-HMIS

HAZARDS CLASSIFICATION

(0-minimal, 1-slight, 2-moderate, 3-serious, 4-severe)

HMIS: HEALTH-2 FIRE-1 REACTIVITY-0

NFPA: HEALTH-1 FIRE-1 REACTIVITY-0

Additional Information

Inactive EPA Reg. No.: 1812-245 (Griffin)

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS: DuPont Crop Protection

Address : Wilmington, DE 19898

Telephone : 1-888-638-7668

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS