



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont  
Material Safety Data Sheet

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M0000545 "DuPont" "LOROX" DF HERBICIDE  
Revised 14-NOV-2007

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"LOROX" is a registered trademark of DuPont.

"DuPont" is a trademark of DuPont.

Tradenames and Synonyms

LINEX 50DF  
LOROX 50DF  
LINURON 50DF  
DPX-Z0326

Tradenames and Synonyms (Remarks)

Inactive EPA Reg. No: 1812-320 (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	50

INERT INGREDIENTS 50

\* 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.

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HAZARDS IDENTIFICATION  
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## Emergency Overview

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

## # Potential Health Effects

Based on data from animal studies, Lorox DF may cause skin irritation with discomfort or rash. Significant skin permeation, and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization.

Based on animal data, eye contact with Lorox DF may cause eye irritation with discomfort, tearing, or blurring of vision.

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

## 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.

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FIRST AID MEASURES  
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## 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.

## (FIRST AID MEASURES - Continued)

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.

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FIRE FIGHTING MEASURES  
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## Extinguishing Media

Dry Chemical, CO2, Water Spray, Foam.

## Fire Fighting Instructions

Evacuate personnel to a safe area. Wear self-contained breathing apparatus (SCBA) and full protective equipment.

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ACCIDENTAL RELEASE MEASURES  
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## Safeguards (Personnel)

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

## Spill Clean Up

Spill or Leak Procedures:  
Dike Spill. Sweep up and place in suitable (fiberboard) containers 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.

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HANDLING AND STORAGE  
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## 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 contact with eyes, skin, or clothing. Wash thoroughly after handling. Wash clothing after use.

## (HANDLING AND STORAGE - Continued)

## Storage

Do not contaminate water, food or feed by storage.

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

Keep out of reach of children.

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EXPOSURE CONTROLS/PERSONAL PROTECTION  
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## Engineering Controls

When handlers use closed systems, enclosed cabs, 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 &amp; 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, &amp; PACKAGING WORKERS

Ventilation : Provide local exhaust ventilation and/or general dilution ventilation to meet published exposure limits.

Respiratory Protection : Wear dual cartridge respirator for dusts and mists.

Eye Protection : Wear protective eyewear to prevent contact with this substance.

## 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 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:

- Coveralls over long sleeved shirt and long pants.

## (EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

- Chemical-resistant gloves made of any waterproof material such as nitrile, butyl, neoprene, and/or barrier laminate.
- Chemical-resistant footwear.

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

- Coveralls.
- 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

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PHYSICAL AND CHEMICAL PROPERTIES  
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## Physical Data

Vapor Pressure : Not determined  
Density : 38 lbs/ft<sup>3</sup>  
Solubility in Water : Disperses. The solubility of linuron technical is 75 ppm in water.  
pH : Not determined  
Boiling Point : Not determined  
Melting Point : Not determined  
Odor : Slight characteristic odor  
Color : Gray  
Physical State : Granules

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STABILITY AND REACTIVITY  
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## Chemical Stability

Stable at normal conditions.

## Incompatibility with Other Materials

None reasonably foreseeable.

## (STABILITY AND REACTIVITY - Continued)

## Polymerization

Polymerization will not occur.

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TOXICOLOGICAL INFORMATION  
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## # Animal Data

## Lorox DF

Dermal LD50: > 2000 mg/kg in rabbits  
Oral LD50: 3489 mg/kg (female rats)  
Inhalation 4 hour LC50: > 5.08 mg/L

Lorox DF is a mild to moderate eye irritant, but is not a skin irritant or 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.

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ECOLOGICAL INFORMATION  
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## # Ecotoxicological Information

## 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.

## (ECOLOGICAL INFORMATION - Continued)

## 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.

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DISPOSAL CONSIDERATIONS  
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## # 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 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 washwaters or 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 ground water contamination.

Refer to the product label for additional application instructions relating to environmental precautions. Always read and follow the product label.

## # 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

## (DISPOSAL CONSIDERATIONS - Continued)

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.

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

The container must only be refilled with this pesticide product. DO NO REUSE THE CONTAINER FOR ANY OTHER PURPOSE.

Do not transport if the container is damaged or leaking.

Disposal of the container must be in compliance with State and local regulations.

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.

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TRANSPORTATION INFORMATION  
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## 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, Solid n.o.s., (Linuron 50%)

Hazard Class : 9  
UN/NA Number : UN 3077  
Packing Group : III  
Marine Pollutant : Yes  
Reportable Quantity : No

IATA/ICAO : Not Regulated



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REGULATORY INFORMATION  
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## 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. 352-686

## 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:

Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to the state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

## RCRA:

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

## State Regulations (U.S.)

CALIFORNIA PROP. 65 : Listed as a developmental toxin.

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OTHER INFORMATION  
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## NFPA, NPCA-HMIS

## HAZARDS CLASSIFICATION

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

HMIS: HEALTH-1 FIRE-1 REACTIVITY-0  
NFPA: HEALTH-1 FIRE-1 REACTIVITY-0

(Continued)

## Additional Information

Inactive EPA Reg. No.: 1812-320 (Griffin)

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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